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Psychopathology and Sexual Addiction as Correlates of Disordered Attachment

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PSYCHOPATHOLOGY AND SEXUAL ADDICTION AS CORRELATES OF DISORDERED ATTACHMENT

by

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ABSTRACT

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The current study examined associations between insecure adult romantic attachment and symptoms of psychopathology, disordered personality, and problematic sexual behaviors in a clinical sample of 402 men in treatment for sexual addiction. Anxious and avoidant attachment were hypothesized to correlate with certain constructs of psychopathology, disordered personality, and dimensions of problematic sexual behaviors. Multiple regression analyses were conducted to examine the hypothesized relationships using data from scales of the Minnesota Multiphasic Personality Inventory-2-Revised Form (MMPI-2-RF), the Sexual Dependence Inventory – 4.0 (SDI – 4.0), and the Experiences in Close Relationships-Revised (ECR-R). Results suggested greater similarities than expected across higher-order constructs of psychopathology and problematic sexual behaviors among our sample of insecurely attached sex addicts. Findings suggest that individuals with insecure attachment may present quite similarly; however, certain unique differences were present at the more narrow and specific level of symptomology. Results may be used to create psychopathology and sexual behavior profiles for anxious and avoidant attachment dimensions. The clinical implications in terms of assessment, treatment, and prevention are discussed, as well as theoretical implications in terms of the transdiagnostic model.

DEDICATION

I am forever grateful to my parents, Victoria and Terry, for their constant and unconditional support, encouragement, belief in me, and love they have provided throughout my life and especially during the challenges I encountered in completing this thesis project. Without your support, this would not have been possible. This work is dedicated to you both, in addition to my dear brothers, Josh and Troy, who have each supported and encouraged me on this academic journey in your own unique and important ways. I also am thankful to my closest friends, who have always responded to my doubts and difficulties with words of encouragement. Finally, I dedicate this work to my dearest, Dean.

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CHAPTER I

INTRODUCTION

Bowlby (1982), who examined the relational bonds between infants and their parents, is credited with developing the theory of attachment. During infancy, emotional bonds, or *attachments*, are first established through interactions with one's parents or primary caregivers, as infants attempt to maintain close physical and psychological proximity with them (Fraley, 2007). According to attachment theory, biological traits, such as an infant's predisposition to temperament, are thought to interact with psychosocial factors, such as parental accessibility and responsiveness. The results of this interaction are theorized to influence personality formation, belief systems, and internal working models of oneself and others (Bowlby, 1988; Feeney, 2008; Feeney & Noller, 1990). Attachment styles described as "lifelong patterns of relating to others" (Davis et al., 2006, p. 465) include patterns of emotions, behavior, goals, and expectations. These patterns, or internal working models, influence how infants perceive and respond to others (Bowlby, 1988) and are believed to persist into adulthood, thereby influencing one's social relationships throughout life (Davis et al., 2006).

Since Bowlby's original research (1982), attachment has been applied to the study of emotion regulation and personality development (Brennan & Shaver, 1998; Fraley, 2007; Shorey & Snyder, 2006). This research suggests that insecure attachment may influence the early development of disordered personality traits, emotional dysregulation, and other psychopathological factors (Fraley & Shaver, 2000). Thus, the examination of clinically relevant external correlates of disordered attachment style could further our understanding of related psychological problems. Attachment theory has also been expanded to the study of adult romantic relationships (Hazan & Shaver, 1987) and is one

factor known to affect the quality of romantic sexual relationships (Bogaert & Sadava, 2002; Brumbaugh & Fraley, 2010; Davis et al., 2006). In examining disordered romantic attachment in adults, researchers have identified associated features of psychopathology (e.g., Feeney, 2008; Thompson, 2008; Weinfield, Sroufe, Egeland, & Carlson, 2008). Accordingly, problematic sexual behavior, whether conceptualized as a type of psychopathology or a symptom of such, may also be associated with disordered romantic attachment. However, few studies have examined the association between attachment style and problematic sexual behaviors.

Recently, revisions were completed for the Sexual Dependency Inventory – Version 4.0 (SDI – 4.0; Arnau, Carnes, & Green, 2014), a self-report measure used in the assessment and treatment of problematic sexual behaviors. Unlike its predecessors, the SDI – 4.0 allows for a hierarchical interpretation of the scales, providing information on both the individual's broad patterns or "major themes" (Arnau et al., 2014, p. 18) of problematic sexual behaviors and cognitions, as well as identifying more specific, narrower symptoms. Examination of external correlates, such as disordered romantic attachment and symptoms of psychopathology would assist in further validating this new instrument. Additionally, such may serve to increase the diagnostic validity of problematic sexual behaviors as a form of psychopathology and inform more effective approaches to treatment (Arnau et al., 2014). For example, previous research has suggested that a more effective treatment approach to sexual addiction includes addressing the individual's approach to relationships (Carnes, 1991). Therefore, integrating issues specific to insecure romantic attachment during treatment of sexual addiction could increase the likelihood of future healthy relationship functioning (Zapf, Greiner, & Carroll, 2008). Further research may also allow for the identification of pre-

existing or comorbid psychopathology or disordered personality traits that may serve as predisposing or maintaining factors for certain problematic sexual behaviors (Arnau et al., 2014), as well as associated protective and risk factors (Kafka, 2010). Such research may also enhance our understanding of treatment planning and response for individuals engaged in problematic sexual behavior. Additionally, findings of comorbidity among these psychological constructs of disordered romantic attachment, features of psychopathology, disordered personality traits, and problematic sexual behavior may increase our understanding of the underlying mechanisms of these conditions as well as the identification of multiple potential etiological influences as suggested by transdiagnostic models of psychopathology (Nolen-Hoeksema & Watkins, 2011). Thus, the aim of the present study was to examine whether disordered attachment styles (anxious and avoidant) were differentially associated with features of psychopathology, disordered personality traits, and problematic sexual behaviors.

Adult Attachment

Ongoing research in this area has resulted in the use of varied terminology and measurement methods to describe adult romantic attachment styles. However, the interpretation of attachment as a two-dimensional model (e.g., anxious and avoidant attachment) has received the most empirical support (Fraley & Shaver, 2000; Fraley & Waller, 1998). The Experiences in Close Relationships Inventory (ECR; Brennan, Clark, & Shaver, 1998a) was the first assessment measure developed to assess the degree of self-reported anxious and avoidant attachment based on this two-dimensional model. Using a dimensional score approach, the ECR yields two scale scores: one for anxious attachment and the other for avoidant attachment. Low scores on both the anxious and avoidant dimensions indicate a secure attachment style, whereas high scores on either or

both the anxious and avoidant dimensions indicate an insecure attachment style. More specifically, high scores on the anxious dimension accompanied by low scores on the avoidant dimension are classified as anxious attachment. Likewise, high scores on the avoidant dimension with low scores on the anxious dimension are classified as avoidant attachment.

Adult attachment styles have been associated with unique romantic relationship experiences and emotions (Fraley & Shaver, 2000). Similar to qualities of secure attachment observed between infants and mothers, secure romantic attachment is characterized by feelings of security, stability, and trust between adults in a romantic relationship. Specifically, securely attached adults generally feel confident that their romantic partner will not abandon them and are comfortable opening themselves up to others for emotional support (Hazan & Shaver, 1987; Mickelson, Kessler, & Shaver, 1997). Secure romantic attachment is associated with realistic expectations for one's romantic partner to be responsive and available (Jacobson, 2004). Further, securely attached individuals report acceptance and tolerance of their partner despite their partner's faults (Hazan & Shaver, 1987). Individuals with secure attachment style have described their romantic experiences as "friendly, happy, and trusting" (Hazan & Shaver, 1987, p. 518), reported satisfactory levels of intimacy in their current romantic relationship (Pielage, Luteijn, & Arrindell, 2005), reported feeling comfortable in close, intimate relationships (Jacobson, 2004), and reported overall life satisfaction (Pielage et al., 2005). Further, these individuals typically have an internalized sense of self-worth and are not dependent on their romantic partner to provide them with a sense of self-confidence (Jacobson, 2004).

Insecure romantic attachment has been described as, "a longing for intimacy and – at the same time – concern about dependency and rejection" (Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004, p. 94). In adult romantic relationships, insecure attachment can be conceptualized along two dimensions: anxiety about abandonment (anxious attachment) and avoidance of closeness (avoidant attachment; Allen & Baucom, 2004). Specifically, anxious attachment is defined as insecurity about the availability and responsiveness of one's romantic partner (Brennan, Clark, & Shaver, 1998b) and has been described as more emotionally and affectively reactive than avoidant attachment (Jacobson, 2004). Individuals with anxious attachment tend to desire extreme closeness in their relationships to protect themselves from rejection (Fraley & Shaver, 2000). Additionally, there is a reliance on the approval of others, as well as the need for their romantic partner to fulfill their sense of worth, as lower self-esteem and lower self-confidence are more common in those with anxious attachment. Individuals with anxious attachment style are often seen by others as "clingy" (Mickelson et al., 1997, p. 1092) and may present as possessive or obsessed with their romantic partner (Feeney, 2008). Anxious attachment has been associated with emotional jealousy and distrust of one's romantic partner and greater relationship dissatisfaction (Feeney, 2008; Knoblock, Solomon, & Cruz, 2001). Despite these negative relationship issues, individuals with anxious attachment often desire highly committed, intense, and passionate romantic relationships (Allen & Baucom, 2004; Hazan & Shaver, 1987). Further, individuals with this style were less willing to compromise when choosing a relationship partner compared to secure and avoidant styles (Tolmacz, 2004). Additionally, individuals with anxious attachment may demonstrate "coercive and dominating conflict tactics" (Feeney, 2008, p. 471), and often react with distress and anger to get their needs met (Feeney &

Noller, 1990). Additionally, individuals scoring high on anxious attachment reported motivations in one study for having sexual relations with their partner to reduce feelings of insecurity and increase feelings of intimacy (Schachner & Shaver, 2004). Lastly, individuals with anxious attachment style have endorsed greater trait and state loneliness than those with secure attachment (Hazan & Shaver, 1987).

Core features of avoidant attachment include discomfort with being close or intimate with others and discomfort depending on others (Feeney, 2008; Hazan & Shaver, 1987). Those with avoidant attachment style report distrust of partners, low commitment, and feeling distant from others (Feeney, 2008). However, despite feelings of distance from others, individuals with avoidant attachment do not report feeling lonely (Feeney, 2008). Low interpersonal competence is common (Feeney & Noller, 1990; Hazan & Shaver, 1987). Avoidant attachment is also associated with managing distress by suppressing anger and withholding intimate disclosure (Feeney, 2008)

Problematic Sexual Behaviors

Sex often plays an important role in healthy adult romantic relationships (Davis et al., 2006). By studying romantic attachment styles, many researchers have found associations between insecure attachment styles and problematic sexual behavior (e.g., Brennan & Shaver, 1995; Mikulincer & Shaver, 2003; Schachner & Shaver, 2004). Problematic sexual behavior, whether referred to as sex addiction, sexual compulsivity, hypersexuality, or any other term, comprises disordered sexual behaviors that have been generally conceptualized by many researchers as a form of psychopathology and/or comorbid with other psychological disorders (e.g., Carnes, 1991; Carnes, Murray, & Charpentier, 2005; Kafka, 2010). Problematic sexual behaviors are believed to correlate

with insecure adult romantic attachment styles (Faisandier, Taylor, & Salisbury, 2012; Zapf, Greiner, & Carroll, 2008).

Problematic, maladaptive, and excessive sexual behaviors are not new phenomena. Terms such as nymphomania, referring to excessive sexual desire and behavior in women, originated from ancient Greek mythology and were used diagnostically beginning in the 19th century (Finlayson, Sealy, & Martin, 2001; Kaplan & Krueger, 2010). Additionally, men displaying excessive sexual desire have been described as having "Don Juanism" (Finlayson et al., 2001, p. 242), after a historical Spanish figure of the 1700s. Further, treatment of such behaviors was documented in the 19th century by psychiatrists Benjamin Rush and Krafft-Ebing who described work with patients whose symptoms involved uncontrollable excessive sexual activities (Finlayson et al., 2001; Goodman, 2009).

Prior to the DSM-5, problematic, nonparaphilic sexual behaviors were typically classified under the DSM-IV-TR category of Sexual Disorder Not Otherwise Specified (APA, 2000). Whereas this diagnostic category was not exclusive to sexual addiction, criteria included reference to "distress about a pattern of repeated sexual relationships involving a succession of lovers who are experienced by the individual only as things to be used" (APA, 2000, p. 582). During preparation of *The Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM–5*; American Psychiatric Association [APA], 2013), a diagnosis of Hypersexuality Disorder was proposed for inclusion (Kafka, 2010). According to Kafka (2010), the disorder was conceptualized as a nonparaphilic sexual desire disorder driven by impulsivity. Specifically, proposed criteria incorporated symptoms of excessive sexual preoccupation (i.e., thoughts, feelings, and fantasies), loss of behavioral control, and impulsivity, which resulted in significant clinical distress and

consequences to the individual. However, the *DSM-5* (APA, 2013) publication did not include a new diagnosis for Hypersexuality, but rather called for further research of the condition.

Greater numbers of individuals are seeking treatment for problematic sexual behaviors (Carnes, 1991; Carnes & Delmonico, 1996; Goodman, 2009) on an outpatient basis with certified sex addiction therapists (CSATs), at specialized residential treatment centers and through attendance in a variety of 12-step programs such as Sex Addicts Anonymous (SAA; International Service Organization of SAA, 2014) and Sex and Love Addicts Anonymous (S.L.A.A.; Augustine Fellowship, 2014). In addition to the increasing awareness and prevalence of affected individuals, there has been much debate regarding the validity of nonparaphilic problematic sexual behaviors as encompassing legitimate psychological disorders (Garcia & Thibaut, 2010). Some argue that diagnosing such behavior unnecessarily pathologizes normal variants of behavior because they are considered excessive or immoral by societal norms and mores (Wakefield, 2012). Others argue that labeling such behavior as a psychiatric problem provides individuals with an excuse to engage in "bad" behavior and could lead to abuse in forensic settings (Halpern, 2011; Wakefield, 2012). However, many others agree that problematic sexual behavior is a psychological condition that warrants treatment (for review, see Finlayson et al., 2001; Kaplan & Krueger, 2010). As such, empirical research on nonparaphilic problematic sexual behaviors has expanded in order that we may better understand its etiology and help validate problematic behavior as an independent psychological construct with clear, universal diagnostic criteria.

It has been estimated by various researchers (e.g., Carnes, 1991; Coleman, Miner, Ohlerking, & Raymond, 2001) that prevalence rates for problematic sexual behavior,

conceptualized as *sex addiction* are between 3% and 6% in the general population. However, these estimates are quite dated, and the lack of consensus on the proper terminology for use in labeling problematic sexual behavior creates considerable difficulty in accurately assessing prevalence. Various terms such as sexual compulsion, sexual addiction, out-of-control sexual behavior, and hypersexuality have all been used synonymously to describe problematic sexual behavior (Bancroft & Vukadinovic, 2004; Kafka, 2010; Kaplan & Krueger, 2010). Further, problematic sexual behavior has been conceptualized both as a form of psychopathology in itself, as well as a related feature of other psychological and personality disorders (Finlayson et al., 2001). Differing conceptualizations and labels suggest multiple unique etiologies for problematic sexual behavior. Disagreements on its etiology and function have contributed to a lack of consensus regarding formal diagnostic criteria and classification in the psychological community. Not surprisingly, the American Psychiatric Association (APA) has continued to evolve and struggle in establishing a widely accepted stance regarding such behaviors (e.g., APA, 2013).

There are three models that are most commonly employed to classify problematic sexual behavior. These models, comprising sexual compulsivity, sexual impulsivity, and sexual addiction, are labeled in accordance with their presumed etiology and function (Goodman, 2009). A review of these major models follows.

Proponents who favor the term sexual compulsivity to describe problematic sexual behavior conceptualize the condition as a type of obsessive-compulsive disorder (OCD). Sexual compulsivity is defined as preoccupation with sexual fantasy and/or engaging in excessive sexual behavior in an obsessive compulsory manner (Finlayson et al., 2001). Engagement in problematic sexual behavior is seen as an effort "to prevent or

reduce anxiety or distress" (APA, 2000, p. 457). However, sexually compulsive behaviors differ from OCD in important ways, such that the sexual behaviors also provide pleasure, at least initially during the course of the disorder, and do not serve a negative reinforcing function as do OCD behaviors (Finlayson et al., 2001; Goodman, 2009).

Problematic sexual behavior has also been characterized as an impulse-control disorder (ICD) due to issues with disinhibition and loss of self-control (APA, 2013). Engagement in ICD behaviors are conceptualized as responses to increasing tension or aroused drive, accompanied by low inhibition or self-control, and are followed by pleasure or relief afterwards. Therefore, the motivational function of ICD is positively reinforcing, not serving to alleviate painful affect (Goodman, 2009). Although sexually addicted behavior does function to produce pleasure in the individual, unlike ICD it also functions to reduce painful affects as with OCD behaviors.

Regarding the third model, the term *sexual addiction* has long been used to describe problematic sexual behaviors (Garcia & Thibaut, 2010; Goodman, 2009). Sigmund Freud used references to addiction as early as the late 19th century to describe disordered sexual behavior (Goodman, 2009). *Sexual addiction* conceptualizes problematic sexual behavior in terms of addictive features of preoccupation, loss of control, and importantly, continued engagement in the behavior despite the experience of negative consequences. Additionally, as with other addictive behaviors, engagement in problematic sexual behaviors serves to reduce anxiety or negative affect (i.e., negatively reinforcing functions), as well as to provide pleasure for the individual (i.e., positively reinforcing functions; Goodman, 2009). Therefore, in the current study, the term sexual

addiction will be used to reference problematic sexual behaviors due to the corresponding preoccupation, loss of control, and resulting negative consequences.

Attachment and Psychopathology

Many research studies have found associations between insecure attachment and the presence of psychopathology. Insecure attachment during childhood with one's primary caregivers has been identified as a risk factor for the later development of psychopathology (Weinfield et al., 2008). Bowlby (1982) also proposed that individuals with insecure attachment were more likely to experience symptoms of psychopathology throughout their lives.

Clinical Syndromes

Based on a review of the literature, Weinfield, Sroufe, Egeland, and Carlson (2008) concluded that insecure attachment during childhood serves as a risk factor for later development of psychopathology. These researchers reported that adults with insecure attachment during childhood had increased vulnerability for the development of depression, anxiety, conduct disorders, and personality disorders later in life. In contrast, secure attachment during childhood appeared to serve as a "protective factor or buffer" (Weinfield et al., 2008, p. 90) against these negative outcomes. Specifically, secure attachment during childhood appeared to influence resistance and resiliency to stress, resulting in the expression of increased competency and empathy in adulthood.

Individuals with insecure attachment are more likely to experience symptoms of psychopathology throughout their lives (Bowlby, 1982). Individuals with insecure adult romantic attachment report more symptoms of depression and physical complaints than those with secure attachment (Pielage et al., 2005). Mickelson and colleagues (1997) examined psychopathology factors and adult attachment in a nationally representative

sample and reported that mood, anxiety, conduct, and antisocial disorders were negatively related to secure attachment and positively related to anxious and avoidant attachment.

Of the disorders examined by Mickelson and colleagues in their 1997 study, only alcohol abuse and drug dependence were more significantly related to avoidant attachment than anxious attachment. In a study by Jacobson (2004), anxious attachment was significantly related with several symptoms of psychopathology, as measured by the MMPI-2 (Jacobson, 2004). Specifically, symptoms of hopelessness, life dissatisfaction, chronic anxiety, and self-doubt were significant positive predictors of anxious attachment in a student sample. Among the clinical sample, anxious attachment was significantly associated with symptoms of egocentricity, sensitivity, and resentfulness (Jacobson, 2004).

In an examination of avoidant attachment and associated symptoms, Patrick, Hobson, Castle, Howard, and Maughan (1994) reported significant associations between avoidant attachment and dysthymia. In addition, they found that alcohol abuse and drug dependence were significantly related with avoidant attachment, as did Mickelson et al. (1997). Avoidant attachment has also been significantly related to symptoms of social withdrawal and discomfort in social situations (Patrick et al., 1994). Among students, symptoms of impulsivity and grandiose thinking were also positively correlated with avoidant attachment (Jacobson, 2004).

Personality Disturbance

Attachment style has also been implicated in personality development (Fraley & Shaver, 2000; Reiner & Spangler, 2013), and several researchers have examined attachment style in relation to the Big Five personality traits (Noftle & Shaver, 2006).

Secure attachment was related to higher self-esteem, internal locus of control, and openness to experience (Mickelson et al., 1997). In both a community-based education training program sample and a prison sample, insecure attachment was associated with schizoid personality traits in individuals diagnosed with pedophilia (Bogaerts, Vanheule, & Desmet, 2006). Further, insecure attachment has been associated with borderline personality traits (Agrawal et al., 2004).

Attachment and Problematic Sexual Behavior

As referenced earlier, the term sexual addiction is utilized in the current study to reference problematic sexual behaviors due to the corresponding symptoms of preoccupation, loss of control, and resulting negative consequences. Males diagnosed with sexual addiction have been found more likely to display an insecure attachment style in their adult romantic relationships (Zapf et al., 2008). For example, Faisandier et al. (2012) found that individuals with higher scores on a sexual addiction screening instrument were associated with greater levels of both anxious and avoidant attachment.

Extradyadic involvement (EDI), defined as an emotional or physically intimate relationship outside of one's primary romantic relationship, may be associated with sex addiction if the required variables of preoccupation, loss of control, and negative consequences are present (Carnes et al., 2005). A study involving participants from a community sample and an undergraduate sample examined attachment style and motivations for engaging in an extradyadic involvement (Allen & Baucom, 2004). In a study by Allen and Baucom (2004), males in both the community and undergraduate samples with insecure attachment styles identified more intimacy motivations for engaging in the EDI, including a sense of neglect from their primary partner, feelings of loneliness, and desire to feel cared about. Additionally, both the community and college

males with insecure attachment reported having more obsessive and needy EDIs. Males from the college sample with a high avoidant attachment style had the greatest number of EDIs compared to the female college sample, as well as both the male and female community samples. These individuals reported engaging in EDIs for reasons of wanting more space and freedom from their primary relationships and as a way to assert their independence. Lastly, individuals with insecure attachment in both the community and undergraduate samples reported feeling ambivalent about intimacy in the EDI, indicating that they desired intimacy but avoided it (Allen & Baucom, 2004).

Marshall (1993/2010) hypothesized that these qualities increase an individual's vulnerability to internalize social messages promoting sexualized objectification, power, and control. Based on his review of additional research studies, Marshall (1993/2010) also theorized that these qualities and additional vulnerability factors are influential in increasing a male's likelihood to sexually offend in adulthood. Vulnerability factors comprised both biological and environmental influences, "exposure to antisocial sexual beliefs, conditioning experiences, and transitory states such as depression, alcohol, intoxication, anger or stress" (Marshall, 1993/2010, p. 75). Marshall (1993/2010) hypothesized that insecure attachment results in feelings of loneliness, social alienation, and lack of intimacy in romantic adult relationships. These combined qualities may give rise to an aggressive, narcissistic personality style. Furthermore, these combined feelings of loneliness, social alienation, and lack of romantic intimacy may interact as precipitators in the initiation of sexually offending behaviors in males and may help to maintain behaviors once established. Insecure attachment has also been associated with other sexually offending behavior such as exhibitionism (Marshall, 1993/2010).

In a study by Zapf et al. (2008), researchers found that sexual addiction was significantly related to insecure romantic attachment. Specifically, results from the Sexual Addiction Screening Test (SAST) and the Experiences in Close Relationships-Revised Scale (ECR-R) indicated 44% of the sexually addicted men reported both high anxious and high avoidant attachment, 28% reported high anxious attachment, and 20% reported high avoidant attachment.

A study by Faisandier, Taylor, and Salisbury (2012) revealed similar results using the revised Sexual Addiction Screening Test (SAST-R) and the ECR-R. They reported that individuals scoring high on sex addiction scored higher on both anxious and avoidant attachment in comparison to individuals with low scores on the SAST-R.

In a study by Schachner and Shaver (2004), individuals with anxious attachment reported having sex with their partners because of the need for affirmation and to help in coping with negative affect. Specifically, anxiously attached individuals reported feeling insecure in their romantic relationships. Motivations for engaging in sex with their partners centered on their desire to feel better about themselves and more valued by their partner. For some, sex was identified as a way to coerce their partner into expressing more affection towards them and reassurance of their love and commitment. Also, these individuals identified expectations that having sex would result in increased feelings of intimacy with their partner (Davis et al., 2006).

Individuals with avoidant attachment reported engaging in sexual activities with multiple partners for reasons independent of intimacy or involvement in committed romantic relationships (Schachner & Shaver, 2004). Individuals with avoidant attachment are more likely to choose nonintimate, uncommitted sexual partners (Davis et al., 2006), and men with this attachment style are less likely to have a steady partner

(Bogaert & Sadava, 2002). Additionally, attachment-related avoidant individuals reported having sex as a means for self-enhancement and increased social status and/or to fulfill peer-group expectations (Schachner & Shaver, 2004).

Summary of the Current Study

The current study utilized a sample of men being treated for sexual addiction to examine whether insecure adult romantic attachment styles were associated with features of psychopathology, disordered personality traits, and problematic sexual behaviors. Insecure attachment styles were conceptualized dimensionally, as anxious and avoidant attachment. Specifically, anxious attachment was characterized by greater feelings of insecurity about the availability and responsiveness of one's romantic partners, desire for extreme closeness and fears of abandonment in intimate relationships, and an overdependence on romantic partners to provide feelings of self-worth. Avoidant attachment was characterized by greater levels of discomfort with closeness and interdependency with romantic partners, avoidance of intimacy, and negative expectations and distrust of romantic partners (Allen & Baucom, 2004; Brennan et al., 1998b). Hypotheses were based on previous research findings as well as theoretical expectations that certain broad constructs or patterns of psychopathology, disordered personality, and problematic sexual behaviors would likely be most associated with characteristics of either anxious attachment or avoidant attachment. Hypotheses also included expectations for significant associations between insecure attachment styles and more specific, narrow symptoms of psychopathology and problematic sexual behaviors.

Hypotheses

It was hypothesized that anxious attachment would be related to symptoms of psychopathology, including broad emotional disturbances and internalizing disorder

symptoms, such as feelings of demoralization, diffuse physical health complaints, lack of positive emotional responsiveness, and maladaptive negative emotions. Additionally, it was hypothesized that anxious attachment would also be related to more narrow, specific symptoms of psychopathology, including interpersonal problems such as interpersonal passivity and feelings of social inhibition, somatic and cognitive dysfunctions such as symptoms of malaise, complaints of gastrointestinal and head pain, and difficulties with memory, as well as internalizing symptoms such as pervasive anxiety, self-doubt, and feelings of hopelessness and inefficacy (Hypothesis 1). Additionally, it was expected that anxious attachment would be related to disordered personality traits characterized by negative emotionality, neuroticism, introversion, and anhedonia (Hypothesis 2). Lastly, it was hypothesized that anxious attachment would be related to problematic sexual behaviors and preoccupations with gaining and maintaining sexual relationships and engagement in compulsive pursuit and fantasies about such relationships. Also, it was expected that anxious attachment would be greater associated than avoidant attachment with problematic sexual behaviors and preoccupations having relationally-based motivations (Hypothesis 3).

Regarding avoidant attachment, it was hypothesized that avoidant attachment would be related to symptoms of psychopathology, including broad thought disturbances and externalizing disorder symptoms, such as cynicism and mistrust of others, self-referential persecutory beliefs, aberrant perceptions and thoughts, over-activation, grandiosity, and antisocial behavior. Additionally, it was expected that avoidant attachment would also be related to more specific, narrow symptoms of psychopathology, including interpersonal problems such as conflictual family relationships, disaffiliativeness, and social avoidance, somatic and cognitive dysfunctions including

neurological complaints, in addition to externalizing symptoms such as a history of juvenile conduct problems, substance abuse, physical aggressiveness, and heightened behavioral activation (Hypothesis 4). Avoidant attachment was also expected to relate to disordered personality traits characterized by impulsivity and disconstraint, aggression, and unusual thought processes and perceptual experiences (Hypothesis 5). Further, avoidant attachment was hypothesized to associate with greater engagement in anonymous, impersonal, and emotionally detached problematic sexual behaviors and preoccupations. It was expected that avoidant attachment would be greater associated than anxious attachment with sexual activities characterized by engagement in more isolative and solitary behaviors, such as pornography use, phone sex, and exhibitionism, exploitive preoccupations, lack of intimacy with sexual partners, and engagement in more exploitive sexual behaviors involving domination, role-playing, swinging, group sex, and purchasing sex (Hypothesis 6).

CHAPTER II

METHOD

Participants

The current study utilized a subsample of archival data collected as part of a larger research project approved by a university institutional review board for the protection of human subjects. The original subsample was composed of 610 participants (558 men, 52 women), who underwent treatment for sexual addiction at an outpatient or inpatient/residential treatment center setting. The larger number of men compared to women comprising the subsample reflected the low base rate of women in the larger research project sample. Due to the likelihood of differences across variables by gender (Arnau et al., 2014; Carnes, Green, & Carnes, 2010), women were excluded from the current study's sample to avoid influencing the male results with the small sample of female data that was likely to differ in content and potentially introduce error into the sample. Additional male participants were excluded from the sample due to missing data for one of the study measures (i.e., Experiences in Close Relationships-Revised Scale).

The resulting sample size used in the current analyses was 402 men. Participants ranged in age from 17 to 78-years-old (M = 43.26, SD = 12.20). Approximately 88% of the sample participants identified their ethnicity as White (n = 355), 4.0% as Hispanic (n = 16), 2.2% as Black (n = 9), 1.7% as Asian (n = 7), and 3.7% as "other" (n = 15). The majority of participants (85.6%) identified their sexual orientation as heterosexual (n = 344), 7.5% as gay (n = 30), 3.2% as bisexual (n = 13), and 3.7% as "unsure" (n = 15). Regarding relationship status, 52.7% of participants (n = 212) reported they were not in a current relationship, and the remaining 47.3% of participants (n = 190) reported being married or in a primary relationship.

Measures

Experiences in Close Relationships-Revised Scale (ECR-R; Fraley, Waller, & Brennan, 2000)

The ECR-R is a 36-item self-report measure of adult romantic attachment in which respondents rate how they generally experience and function in close relationships. The measure comprises two scales, each with 18 items, which assess individual differences in attachment-related anxiety (M = 2.16, SD = 1.08; Fraley et al., 2000) and attachment-related avoidance (M = 2.06, SD = 1.13; Fraley et al., 2000). Attachment-related anxiety "corresponds to anxiety and vigilance concerning rejection and abandonment" (Fraley & Shaver, 2000, p. 142), whereas attachment-related avoidance refers to "discomfort with closeness and dependency or a reluctance to be intimate with others" (Fraley & Shaver, 2000, pp. 142-143). Items are rated on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Scoring is computed by averaging the raw scores from the individual's responses for items on each subscale. Therefore, scoring yields two mean subscale scores, one for attachment-related anxiety and the other for attachment-related avoidance. Higher subscale mean scores reflect more insecure romantic attachment, whereas lower subscale scores indicate more secure romantic attachment (Fraley & Waller, 1998). Specifically, the anxious attachment subscale score indicates "the extent to which people are insecure vs. secure about the availability and responsiveness of romantic partners" (Fraley, 2012, para. 1), whereas the avoidant attachment subscale score indicates "the extent to which people are uncomfortable being close to others vs. secure depending on others" (Fraley, 2012, para. 1).

The ECR-R was developed via item response theory (IRT) analysis using the original Experiences in Close Relationships scale (ECR; Brennan et al., 1998a). The resulting ECR-R comprises a two-factor dimensional solution consisting of attachment-related anxiety and attachment-related avoidance (Fraley et al., 2000; Sibley & Liu, 2004). Longitudinal analyses of the anxiety and avoidance subscales suggested that the ECR-R provided a high degree of temporal stability for latent attachment during both a 3-week period (85% shared variance; Sibley, Fischer, & Liu, 2005) and a 6-week period (86% shared variance; Sibley & Liu, 2004). Overall, Sibley and Liu (2004) concluded that the ECR-R scores provided highly stable estimates of trait attachment over short time periods with minimal measurement error. Scores on the ECR-R have also shown high internal reliability for both anxiety and avoidance subscales (Sibley & Liu, 2004), as well as acceptable scores for convergent and discriminant validity (Sibley et al., 2005).

Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008)

The MMPI-2-RF is a self-report questionnaire that assesses various domains of psychopathology and personality. The measure is composed of 338 true-false items. Respondents are instructed to read each statement and choose whether the statement is "true or mostly true…or false or not usually true" in regard to themselves (Ben-Porath, 2012, p. 180). Scores are calculated by summing the number of items endorsed for each scale and converting these raw scores into T-score values. T-scores of 65 (92nd percentile) and higher are considered elevated, with higher scores indicating more severe levels of impairment. Additionally, low scores (i.e., ≤ 38) are interpreted for certain scales as indicated in the technical manual. Overall, the MMPI-2-RF scales have

demonstrated convergent and discriminant validity, as well as evidence of construct validity (Sellbom, Bagby, Kushner, Quilty, & Ayearst, 2012).

In the current study, each respondent's validity scales were reviewed to determine protocol interpretability, with standard cutoffs employed to delete invalid cases (Ben-Porath & Tellegen, 2008/2011). Scores from the following scales were utilized: Higher-Order (H-O), Restructured Clinical (RC), Specific Problems (SP), and the Personality Psychopathology Five-Revised (PSY-5R). The Interest scales were not included, as they do not relate to psychopathology constructs. The H-O scales comprise three broadband dimensions of psychopathology and personality, including Emotional/Internalizing Dysfunction (EID), which measures difficulties in the domain of mood and affect; Thought Dysfunction (THD), which measures disordered thinking; and Behavioral/ Externalizing Dysfunction (BXD), which measures a broad range of undercontrolled, acting-out behaviors (Ben-Porath, 2012). The RC scales are comprised of Demoralization (RCd/dem), Somatic Complaints (RC1/som), Low Positive Emotions (RC2/lpe), Cynicism (RC3/cyn), Antisocial Behavior (RC4/asb), Ideas of Persecution (RC6/per), Dysfunctional Negative Emotions (RC7/dne), Aberrant Experiences (RC8/abx), and Hypomanic Activation (RC9/hpm). The RC scales are designed to measure more focused, multi-faceted, mid-level constructs of psychopathology and personality. The third set of MMPI-2-RF scales comprise the Specific Problems (SP) scales, which measure narrow bandwidth constructs grouped together by content-type (Ben-Porath, 2012). The SP scales are organized into five domains, which include the Somatic/Cognitive, Internalizing, Externalizing, Interpersonal, and Interest scales. Each SP domain contains subscales measuring specific symptoms related to its domain content. Lastly, the Personality Psychopathology Five-Revised (PSY-5R) scales, which comprise

Aggressiveness-R (AGGR-r), Psychoticism-R (PSYC-r), Disconstraint-R (DISC-r), Negative Emotionality/Neuroticism-R (NEGE-r), and Introversion/Low Positive Emotionality-R (INTR-r), measure personality traits related to disordered emotions, thoughts, and behaviors.

Sexual Dependency Inventory – Version 4.0 (SDI – 4.0; Green, Arnau, & Carnes, 2014)

The SDI – 4.0 is a multidimensional, broadband assessment of sexual behaviors and cognitive preoccupations associated with sexual addiction. The measure is utilized as both a diagnostic instrument and as a clinical aid in identifying problematic symptoms in individuals meeting criteria for sexual addiction (Arnau et al., 2014). The SDI – 4.0 is comprised of the Behavior and Preoccupation Scales, which are further divided into 35 subscales (Table 1; Green, Arnau, Carnes, & Carnes, 2014). The measure contains 206 items, each scored twice – once for frequency of the behavior and once rating the emotional power of the behavior. Item content ranges from behaviors that are not necessarily considered dysfunctional but may be problematic based upon high frequency and associated negative consequences (e.g., masturbation), to behaviors that are classified as disordered at any frequency (e.g., sex involving children; Green et al., 2014). Respondents are instructed to rate each item for both "frequency" and "power" using a 6-point Likert scale (Arnau et al., 2014). Frequency ratings of items, which comprise the 20 Behavior scales, reflect how often the individual reports engaging in the sexual behaviors described (e.g., 0 = *never*; 1 = *one time*; 2 = *seldom*; 3 = *periodically*; 4 = *often*; 5 = *very often*). The power ratings of items, which comprise the 15 Preoccupation scales, reflect the individual's reported degree of power or cognitive preoccupation that thoughts about the behavior have over them, regardless of whether or not the individual actually engages in those behaviors (e.g., 0 = *no power*; 1 = *very low power*; 2 = *low*

power; 3 = *moderate power*; 4 = *high power*; 5 = *very high power*). Scoring is performed by separately summing frequency ratings for each item from the Behavior scales and power ratings for each item from the Preoccupation scales to yield individual subscale scores, which are then converted into individual T-scores (Arnau et al., 2014).

Table 1

Sexual Dependency Inventory – Version 4.0: Behavior and Preoccupation Scales and Scale Content

Behavior Scales	# Items	Scale Content
Fantasizing & Consequences	16	Compulsively engaging in sexual fantasies and/or sexualizing stimuli in the environment. Related consequences of sexual compulsivity.
Pornography Use	8	Using pornography in various media.
Networking for Anonymous Sex	16	Using computers, publications and clubs to seek sex partners.
Swinging & Group Sex	8	Trading sex partners having sex in groups.
Cruising Behavior	6	Engaging in sex in public and/or seeking sex in public.
Relationship Addiction	10	Compulsive pursuit of or fantasy about relationships.
Conquest	8	Compulsively pursuing opportunities to seduce others.
Intrusive Sex	7	Using sexual content to embarrass or shock others.
Humiliation & Domination	6	Interest in degrading, painful or bizarre sexual practices, but little or no overt engagement in pain exchange behaviors.
Pain Exchange	11	Engaging in sexual behaviors that can cause pain and injury. Interest in degrading, painful or bizarre sexual practices.
Paying for Sex, Commercial	6	Purchasing sexual services from sex trade workers.
Paying for Sex, Power	4	Financially or occupationally supporting someone to maintain them as a sex partner.
Phone Sex	4	Sexual stimulation via telephone use.
Voyeurism & Covert Intrusions	13	Voyeurism, frotteurism, stalking, and abuse of the incapacitated.
Exhibition	6	Narrow scale specific to exhibitionism behaviors.
Exploitive Sex, Trust	8	Abusing a position of authority or trust to exploit others.
Exploitive Sex, Children	6	Pedophilia, sexual abuse of children, and inappropriate exposure of children to sexual behavior.
Drug Interaction	7	Combining drug abuse with sex.
Object Sex	6	Using objects or machines for sexual stimulation.
Home-produced Pornography	6	Recording one's own sexual behaviors in various media.

Table 1 (continued).

Preoccupation Scales	# Items	Scale Content
Eroticized Rage 1: Exploiting Children/ Family	7	Preoccupation with sexual behavior targeting vulnerable individuals, such as children.
Eroticized Rage 2: Voyeurism & Boundary Invasion	14	Preoccupation with voyeurism, frotteurism and stalking.
Eroticized Rage 3: Exploitive Sex, Abuse of Trust	8	Preoccupation with abusing a position of authority or trust to exploit others.
Eroticized Rage 4: Sexual Violence, Intrusion & Hostility	10	Preoccupation with sexual asphyxiation and behaviors intended to shock, embarrass, or humiliate others.
Relationships	13	Preoccupation with starting and/or maintaining relationships. May include multiple simultaneous relationships.
Isolated Fantasizing	20	Preoccupation with isolated sexual behaviors.
Exhibition & Public Anonymous Sex	15	Preoccupation with exposing oneself sexually, having sex in public or seeking sexual partners in public.
Swinging & Group Sex	9	Preoccupation with trading sex partners or having sex in groups.
Networking for Anonymous Sex	15	Preoccupation with using computers, publications and clubs to seek sex partners.
Sadomasochism	13	Preoccupation with sexual activities which are painful, dangerous, degrading or bizarre.
Paying for Sex/Financial	10	Preoccupation with buying sex either from sex trade workers or by supporting a sex partner financially.
Phone Sex	5	Preoccupation with phone sex.
Producing Pornography	5	Preoccupation with producing pornography, possibly for distribution.
Drug Interaction	8	Preoccupation with including drug use with sexual behavior.
Object Sex	6	Preoccupation with using objects or machines for sexual stimulation.

Note. Table 1 from "Principal Components Analysis of the Behavior and Preoccupation Subscales of the Sexual Dependency Inventory-4.0: Development and Psychometric Evaluation of Higher-Order Scales," by R. C. Arnau, P. J. Carnes, and B. A. Green, 2014, Manuscript submitted for publication. Reprinted with permission.

Regarding the psychometric properties of the SDI – 4.0, the internal structure of the Behavior and Preoccupation subscales has been reported as highly stable, with the exception of a few scales related to low base-rate behaviors (Green et al., 2014). Additionally, subscale scores have demonstrated good internal consistency reliability,

with alpha coefficients ranging from good ($\propto > .70$) to excellent ($\propto > .80$). However, inter-scale correlations were reported as high, prompting a higher-order factor analysis of the SDI – 4.0 Behavior and Preoccupation Scales (Green et al., 2014). A principal components analyses (PCA) with a promax-rotated pattern matrix indicated a 7-component solution, or seven higher-order scales, accounting for 67.85% of the variance and resulting in a reasonably good simple structure with few cross-loadings (Arnau et al., 2014). The seven higher-order scales of the SDI – 4.0, as shown in Table 2, comprise the following: Pain and Role Playing, Hostility and Exploiting the Vulnerable, Sexualized Attachment, Isolated and Self-Stimulation, Swinging and Public Anonymous Sex, Networking for Anonymous Sex, and Drug and Sex Trade Use.

Table 2

Summary of Sexual Dependency Inventory – Version 4.0 Higher-Order Scales and Behavior and Preoccupation Subscales

Higher-Order Scales	Subscale		
	Type	Title	Content
Component 1: Pain & Roleplaying	B	Pain Exchange	Engaging in sexual behaviors that can cause pain and injury. Interest in degrading, painful or bizarre sexual practices
	B	Object Sex	Using objects or machines for sexual stimulation
	B	Humiliation & Domination	Interest in degrading, painful or bizarre sexual practices, but little or no overt engagement in pain exchange behaviors
	B	Home-Produced Pornography	Recording one's own sexual behaviors in various media
	P	Sadomasochism	Preoccupation with sexual activities which are painful, dangerous, degrading, or bizarre
	P	Object Sex	Preoccupation with using objects or machines for sexual stimulation
Component 2: Hostility & Exploiting the Vulnerable	B	Exploitive Sex, Children	Pedophilia, sexual abuse of children, and inappropriate exposure of children to sexual behavior
	P	Exploiting Children/ Family (Eroticized Rage 1)	Preoccupation with sexual behavior targeting vulnerable individuals, such as children
	P	Voyeurism & Boundary Violations (Eroticized Rage 2)	Preoccupation with voyeurism, frotteurism and stalking
	P	Exploitive Sex, Abuse of Trust (Eroticized Rage 3)	Preoccupation with abusing a position of authority or trust to exploit others
	P	Producing Pornography	Preoccupation with producing pornography, possibly for distribution
	P	Sexual Violence, Intrusion, Hostility (Eroticized Rage 4)	Preoccupation with sexual asphyxiation and behaviors intended to shock, embarrass, or humiliate others
Component 3: Sexualized Attachment	B	Exploitive Sex, Trust	Abusing a position of authority or trust to exploit others
	B	Conquest	Compulsively pursuing opportunities to seduce others
	B	Relationship Addiction	Compulsive pursuit of or fantasy about relationships
	B	Intrusive Sex	Using sexual content to embarrass or shock others
	B	Paying for Sex, Power	Financially or occupationally supporting someone to maintain them as a sex partner
	B	Preoccupation with Relationships	Preoccupation with starting and/or maintaining relationships; may include multiple simultaneous relationships
	P	Preoccupation with Relationships	Preoccupation with starting and/or maintaining relationships; may include multiple simultaneous relationships

Table 2 (continued).

Higher-Order Scales	Subscale		
	Type	Title	Content
Component 4: Isolated & Self Stimulation	B	Fantasy & Consequences	Compulsively engaging in sexual fantasies and/or sexualizing stimuli in the environment. Related consequences of sexual compulsivity
	B	Pornography Use	Using pornography in various media
	B	Voyeurism & Covert Intrusions	Voyeurism frotteurism stalking, and abuse of the incapacitated
	P	Isolated Fantasizing	Preoccupation with isolated sexual behaviors
Component 5: Swinging & Public Anonymous Sex	B	Cruising Behavior	Engaging in sex in public and/or seeking sex in public
	B	Swinging & Group Sex	Trading sex partners, having sex in groups
	B	Exhibition	Narrow scale specific to exhibitionism behaviors
	P	Exhibition & Public Anonymous Sex	Preoccupation with exposing oneself sexually, having sex in public or seeking sexual partners in public
	P	Swinging & Group Sex	Preoccupation with trading sex partners or having sex in groups
Component 6: Networking for Anonymous Sex	B	Phone Sex	Sexual stimulation via telephone use
	B	Networking for Anonymous Sex	Using computers, publications, and clubs to seek sex partners
	P	Phone Sex	Preoccupation with phone sex
	P	Networking for Anonymous Sex	Preoccupation with using computers, publications and clubs to seek sex partners
Component 7: Drug & Sex Trade Use	B	Paying for Sex, Commercial	Purchasing sexual services from sex trade workers
	B	Drug Interaction	Combining drug abuse with sex
	P	Paying for Sex, Financial	Preoccupation with buying sex either from sex trade workers or by supporting a sex partner financially
	P	Drug Interaction	Preoccupation with including drug use with sexual behavior

Note. H-O = Higher-Order Scale; P = Preoccupation; B = Behavior. Adapted from "Principal components analysis of the behavior and preoccupation subscales of the Sexual Dependency Inventory- 4.0: Development and psychometric evaluation of higher-order scales," by R. C. Arnau, P. J. Carnes, and B. A. Green, 2014, Manuscript submitted for publication.

Arnau et al. (2014) reported that the 7-component structure was replicable in a cross-validation sample. Further, the corrected item-total, or *scale-total*, correlations for the higher-order scales are reported as excellent, with average scores ranging from .58 to

.76, and demonstrated excellent internal consistency reliability, with alphas ranging from .93 to .96. Overall, Arnau et al. (2014) concluded that the Higher-Order scale scores of the SDI – 4.0 appear to reflect the higher-order constructs of behaviors and cognitions related to sexual addiction. Each of the higher-order constructs were expected to relate to patterns of behavior and thoughts, which appear disconnected and isolative, or appear more related to constructs of mood and appear more relational in nature. All seven higher-order SDI – 4.0 scales were utilized in the current study. Additionally, post-hoc analyses were performed using the Behavior and Preoccupation subscales of those H-O component scales, which were determined to be significant predictors of ECR-R attachment-related anxiety or avoidance in the main regression models.

Procedure

The current study utilized a subsample of archival data collected as part of a larger research project. Data from the larger research project examined in the current study included demographic information and participant responses from three assessments, comprising the Experiences in Close Relationships-Revised scale (Fraley et al., 2000), the Minnesota Multiphasic Personality Inventory-2-Restructured Form (Ben-Porath & Tellegen, 2008), and the Sexual Dependency Inventory – Version 4.0 (Green et al., 2014). Data were gathered under approval of the Institutional Review Board for the Protection of Human Subjects at The University of Southern Mississippi.

Hypotheses were tested using a series of multiple regression analyses. Multiple regression analyses were performed twice, first with ECR-R attachment-related anxiety as the dependent variable, and subsequently with ECR-R attachment-related avoidance. Independent variables comprising psychopathological symptoms, disordered personality traits, and higher-order constructs of problematic sexual behaviors and preoccupations

were derived from the MMPI-2-RF and SDI – 4.0. Independent variables were regressed simultaneously in construct-related groups and at different levels of abstraction (i.e., MMPI-2-RF Higher-Order scales and Restructured Clinical scales) onto ECR-R Anxiety and ECR-R Avoidance alternatively. This method of analysis allowed for examination of the relationships between anxious attachment, then avoidant attachment, with each variable, while simultaneously accounting for other variables in each regression model. In the current study, certain constructs were hypothesized to associate more strongly with anxious attachment, and other constructs with avoidant attachment. In the significant regression models, both shared and unique predictors were examined to determine whether certain variables contributed unique variance to attachment style. Additionally, post-hoc analyses were conducted for the higher-order constructs of problematic sexual behaviors and preoccupations from the SDI – 4.0 that were significant predictors of attachment style in the regression models. Separate multiple regressions were conducted using the corresponding behavior and preoccupation subscales in the prediction model for each significant H-O scale. The post-hoc regression analyses were performed to identify which subscales contributed unique variance to the model when entered simultaneously, as well as which subscales contributed individually at the part and partial correlation level, despite whether they were rendered insignificant by the simultaneous entry.

Due to the numerous multiple regression analyses conducted, a Bonferroni adjustment was applied to set criteria for statistical significance to reduce the chances of Type 1 error. Alpha levels were conservatively set at $p < .001$ for all multiple regression analyses.

CHAPTER III

RESULTS

Descriptive statistics are presented for the ECR-R subscales and the SDI – 4.0 Higher-Order scales in Table 3. For the sample as a group, mean scores were elevated on both the ECR-R anxiety subscale (M = 3.80; SD = 1.53) and ECR-R avoidance subscale (M = 3.47; SD = 1.48). In comparison, ECR-R anxiety means from general population samples have ranged from 2.16 (SD = 1.08; Fraley et al., 2000) to 2.85 (SD = 1.12; Fraley, Heffernan, Vicary, & Brumbaugh, 2011), and ECR-R avoidance means have ranged from 2.06 (SD = 1.13; Fraley et al., 2000) to 2.34 (SD = 0.98; Fraley et al., 2011). Mean scores obtained from a clinical sample (Jacobson, 2004) were similarly elevated to those found in the current study. For example, Jacobson (2004) reported mean ECR anxiety scores as 4.22 and ECR avoidance scores as 3.15. Therefore, the elevated scores for anxious and avoidant attachment attained in the current study by our clinical sample of individuals suggest that individuals in clinical settings, such as those receiving mental health treatment, experience higher levels of insecure attachment and associated dysfunction in their romantic relationships compared to individuals in the general population (e.g., Fraley et al., 2000).

Means and score ranges for the SDI – 4.0 Higher-Order scales are also presented in Table 3. The group mean was slightly elevated for only one of the Higher-Order scales, Swinging and Public Anonymous Sex/Component 5 (M = 55.25; SD = 16.18). An examination of the range of scores across component scales indicated a large amount of variability among participant scores, suggesting heterogeneity in symptom presentation within our clinical sample. For example, scores on the Swinging and Public Anonymous Sex scale/Component 5 ranged from 42.31 to 156.12, whereas scores on the Sexualized

Attachment scale/Component 3 ranged from 34.95 to 83.89 (M = 50; SD = 10). Additionally, the maximum range of scores on all seven component scales were elevated a minimum of two standard deviations above the sample scale mean scores, indicating numerous participants endorsed experiencing greater symptom severity.

Table 3

Descriptives of Variables from ECR-R Subscales and SDI – 4.0 Higher-Order Component Scales

Measure	*n*	*M*[a] *(SD)*	Range (Min – Max)	Skew	Kurtosis
ECR-R Anxiety	402	3.80 (1.53)	7.00 (.00 – 7.00)	-0.70	0.38
ECR-R Avoidance	402	3.47 (1.48)	7.00 (.00 – 7.00)	-0.43	0.14
Component 1 Pain & Role Playing	401	51.37 (11.11)	57.37 (39.77 – 97.15)	1.37	1.60
Component 2 Hostility & Exploiting Vulnerable	402	49.76 (8.13)	58.26 (42.55 – 100.81)	2.04	5.72
Component 3 Sexualized Attachment	402	52.25 (10.26)	48.93 (34.95 – 83.89)	0.49	-0.25
Component 4 Isolated & Self-Stimulation	402	52.19 (9.70)	47.71 (25.76 – 73.47)	-0.40	-0.13
Component 5 Swinging & Public Anonymous Sex	400	55.25 (16.18)	113.81 (42.31 – 156.12)	1.98	5.30
Component 6 Networking for Anonymous Sex	402	51.44 (10.61)	47.22 (40.37 – 87.59)	0.89	-0.08
Component 7 Drug and Sex Trade Use	402	51.94 (10.90)	46.81 (39.83 – 86.64)	0.86	-0.04

Note. The variation in sample size is due to random missing variables on the Sexual Dependency Inventory – 4.0 (SDI – 4.0) for two participants, and addressed with listwise deletion. ECR-R = Experiences in Close Relationships-Revised Scale.

[a] SDI – 4.0 Higher-Order (H-O) component scale scores are standardized as T scores, with *M*s = 50 and *SD*s = 10.

Table 4

Descriptives of Variables from MMPI-2-RF

Scale/*Subscale*	*M*[a] *(SD)*	Range (Min – Max)	Skew	Kurtosis
H-O EID	60.32 (13.13)	61.02 (31.67 – 92.69)	0.14	-0.72
H-O THD	50.46 (10.72)	61.61 (39.18 – 100.79)	1.14	1.77
H-O BXD	54.32 (10.84)	54.15 (32.04 – 86.19)	0.51	-0.05
RCd/dem	62.64 (13.00)	49.18 (36.81 – 86.00)	-0.07	-0.93
RC1/som	52.23 (10.95)	58.67 (36.27 – 94.94)	0.75	0.59
RC2/lpe	58.29 (11.77)	65.38 (33.77 – 99.16)	0.72	0.23
RC3/cyn	49.92 (10.31)	48.59 (33.81 – 82.39)	0.81	0.62
RC4/asb	58.68 (10.79)	60.82 (34.41 – 95.23)	0.41	-0.18
RC6/per	54.11 (10.67)	46.22 (43.78 – 90.01)	0.77	0.01
RC7/dne	54.47 (11.98)	56.43 (33.91 – 90.34)	0.52	-0.31
RC8/abx	51.58 (11.21)	53.69 (38.74 – 92.43)	0.91	0.96
RC9/hpm	48.36 (11.02)	64.24 (24.21 – 88.46)	0.73	0.41
SP-S/C MLS	57.71 (10.70)	47.29 (38.20 – 85.49)	0.45	-0.31
SP-S/C GIC	52.78 (9.33)	38.83 (47.14 – 85.97)	1.41	0.85
SP-S/C HPC	52.09 (9.66)	39.46 (42.55 – 82.01)	0.84	0.33
SP-S/C NUC	52.27 (10.07)	47.12 (41.66 – 88.78)	0.82	0.59
SP-S/C COG	57.92 (12.58)	53.87 (40.56 – 94.44)	0.42	-0.47
SP-IN SUI	53.46 (12.02)	56.08 (46.84 – 102.93)	1.83	2.75
SP-IN HLP	51.83 (10.82)	44.26 (41.29 – 85.55)	0.89	0.03
SP-IN SFD	59.34 (11.69)	30.58 (42.94 – 73.53)	-0.07	-1.44
SP-IN NFC	54.68 (12.13)	43.00 (36.52 – 79.52)	0.41	-0.72
SP-IN STW	57.39 (11.88)	44.07 (36.13 – 80.20)	0.42	-0.86
SP-IN AXY	55.63 (11.47)	48.03 (45.58 – 93.61)	0.91	-0.03
SP-IN ANP	53.25 (11.55)	40.18 (39.03 – 79.20)	0.60	-0.43
SP-IN BRF	49.67 (8.96)	45.95 (43.91 – 89.85)	1.64	2.80
SP-IN MSF	46.73 (7.62)	41.09 (36.00 – 77.08)	0.92	1.56
SP-EX JCP	54.28 (10.90)	41.02 (40.81 – 81.83)	0.50	-0.44
SP-EX SUB	54.75 (11.34)	49.32 (41.34 – 90.66)	0.80	0.21
SP-EX AGG	50.08 (10.62)	46.84 (37.70 – 84.54)	0.75	0.04
SP-EX ACT	45.89 (9.99)	49.21 (33.46 – 82.67)	1.00	1.15
SP-IP FML	54.61 (11.73)	46.44 (37.15 – 83.60)	0.47	-0.32
SP-IP IPP	51.79 (10.24)	46.16 (33.78 – 79.95)	0.63	0.14
SP-IP SAV	54.61 (11.21)	43.17 (36.56 – 79.72)	0.57	-0.36
SP-IP SHY	51.90 (11.50)	36.82 (37.12 – 73.94)	0.57	-0.69
SP-IP DSF	51.95 (9.68)	53.03 (45.70 – 98.73)	1.65	2.56
PSY-5R AGGR-r	47.12 (9.08)	54.82 (28.06 – 82.88)	1.15	1.57
PSY-5R PSYC-r	50.95 (10.96)	60.33 (38.66 – 98.99)	1.12	1.61
PSY-5R DISC-r	55.32 (10.24)	53.43 (31.22 – 84.65)	0.57	0.01
PSY-5R NEGE-r	56.82 (12.44)	61.49 (32.58 – 94.07)	0.44	-0.60
PSY-5R INTR-r	56.63 (11.02)	60.27 (32.48 – 92.75)	0.59	-0.06

Note. Italics indicate subscales. MMPI-2-RF = Minnesota Multiphasic Personality Inventory-2-Restructured Form; H-O = Higher-Order Scales; EID = Emotional/Internalizing Dysfunction; THD = Thought Dysfunction; BXD = Behavioral/Externalizing Dysfunction; RC = Restructured Clinical Scales; RCd/dem = Demoralization; RC1/som = Somatic Complaints; RC2/lpe = Low Positive Emotions; RC3/cyn = Cynicism; RC4/asb = Antisocial Behavior; RC6/per = Ideas of Persecution; RC7/dne = Dysfunctional

Table 4 (continued).

Negative Emotions; RC8/abx = Aberrant Experiences; RC9/hpm = Hypomanic Activation; *SP* = Specific Problems Scales; *S/C* = Somatic/Cognitive Subscales; *MLS* = Malaise; *GIC* = Gastrointestinal Complaints; *HPC* = Head Pain Complaints; *NUC* = Neurological Complaints; *COG* = Cognitive Complaints; *IN* = Internalizing Subscales; *SUI* = Suicidal/Death Ideation; *HLP* = Helplessness/Hopelessness; *SFD* = Self-Doubt; *NFC* = Inefficacy; *STW* = Stress/Worry; *AXY* = Anxiety; *ANP* = Anger Proneness; *BRF* = Behavior-Restricting Fears; *MSF* = Multiple Specific Fears; *EX* = Externalizing Subscales; *JCP* = Juvenile Conduct Problems; *SUB* = Substance Abuse; *AGG* = Aggression; *ACT* = Activation; *IP* = Interpersonal Subscales; *FML* = Family Problems; *IPP* = Passivity; *SAV* = Social Avoidance; *SHY* = Shyness; *DSF* = Disaffiliativeness; PSY-5R = Personality Psychopathology Five-Revised Scales; AGGR-r = Aggressiveness-R; PSYC-r = Psychoticism-R; DISC-r = Disconstraint-R; NEGE-r = Negative-Emotionality/Neuroticism-R; INTR-r = Introversion/ Low Positive Emotionality-R.

[a] MMPI-2-RF scores are standardized as T-scores, with *M*s = 50 and *SD*s = 10.

Table 4 presents descriptive statistics for the MMPI-2-RF scales and subscales utilized in the current study. There were no elevations in the clinical range (i.e., $T \geq 65$) across MMPI-2-RF mean scale and subscale scores; however, the group mean score on the Demoralization scale ($M = 62.64$) trended towards clinical significance. Examination of the range of scores across scales and subscales revealed that participant scores in the maximum range were generally elevated two to three standard deviations above the clinically significant threshold, indicating the endorsement of severe symptoms of psychopathology by numerous participants in our sample.

Preliminary Analyses

Zero-order Correlations

Zero-order correlation analyses were conducted to determine significant associations between dimensions of insecure attachment with constructs of psychopathology, disordered personality, and problematic sexual behaviors and preoccupations. Due to the large number of variables examined, results of the zero-order correlation analyses were grouped in tables by assessment measures and subscales (Tables 5 – 9). Initial results of the zero-order correlation analyses indicated a large

number of significant relationships among variables. Despite significant *p*-values, many of these relationships were significant but not actually meaningful due to the large sample size in the current study. Therefore, a decision was made to address significant relationships more conservatively by setting the threshold for meaningful associations at $r = .25$, and to disregard zero-order correlations with significance less than $p < .001$. Whereas all significant *p*-values were displayed in the corresponding tables, discussion of results focused primarily on associations considered meaningful.

Results of the zero-order correlations revealed significant shared correlates of both anxious and avoidant attachment, as well as significant unique correlates for each insecure attachment style. Implementing the more conservative threshold for meaningful significance ($r \geq .25$; $p < .001$), shared correlates of both anxious and avoidant attachment were examined first. Significant shared correlates included Emotional/ Internalizing Dysfunction (EID), Demoralization (RCd), and Self-doubt from the Specific Problems Internalizing subscale (Tables 6 and 7). Additionally, symptoms of Dysfunctional Negative Emotions (RC7; Table 6) and personality traits related to Negative Emotionality/Neuroticism (PSY-5-R; Table 9) were significantly and meaningfully associated with anxious attachment, and avoidant attachment closely approached the set threshold for meaningful significance. Anxious and avoidant attachment were both positively related with problematic sexual behaviors and preoccupations characterized by Sexualized Attachment (SDI – 4.0 Component 3; Table 5). Additionally, anxious attachment was positively related with Isolated and Self-Stimulation (SDI – 4.0 Component 4; Table 5), and avoidant attachment closely approached the set threshold for meaningful significance.

Further examination of zero-order correlations indicated a large number of significant and meaningful unique correlates of anxious attachment. Specifically, anxious attachment was uniquely related to broad problems with disordered thinking, as indicated by the Thought Dysfunction (THD) Higher-Order scale on the MMPI-2-RF (Table 6). Additionally, the relationship between anxious attachment and the Behavioral/Externalizing Dysfunction Higher-Order scale approached the threshold for meaningful significance. Anxious attachment was uniquely related to four of the nine MMPI-2-RF Restructured Clinical scales comprising symptoms of Cynicism, Antisocial Behavior, Ideas of Persecution, and Hypomanic Activation. RC scales that closely approached meaningful significance with anxious attachment included Somatic Complaints, Low Positive Emotions, and Aberrant Experiences (Table 6).

Anxious attachment was also positively related with more narrow, specific symptoms of psychopathology, as indicated by data from the MMPI-2-RF Specific Problems Scales. Unique positive relationships with anxious attachment included Somatic/Cognitive symptoms of Malaise and Cognitive Complaints (Table 7), Internalizing symptoms (Table 7) comprising Inefficacy, Stress/Worry, and Anxiety, and Interpersonal symptoms related to Family Problems. Interpersonal symptoms associated with Helplessness/Hopelessness and Anger Proneness, internalizing symptoms associated with Shyness, and Externalizing symptoms related to Aggression and Activation all approached the threshold for meaningful significance with anxious attachment (Table 8). Regarding unique relationships with disordered personality traits, anxious attachment was significantly related with Negative Emotionality and Neuroticism (Table 9), though avoidant attachment approached the significant threshold for this variable as mentioned previously. Traits associated with Psychoticism approached the threshold for meaningful

significance with anxious attachment. Lastly, also mentioned previously, anxious attachment was uniquely correlated with problematic sexual behaviors and preoccupations related to Isolated and Self-Stimulation (SDI – 4.0 Component 4; Table 5); however, the correlation among avoidant attachment and component 4 approached the set threshold for significance.

In contrast to anxious attachment, the results of the zero-order correlational analyses indicated that avoidant attachment had only one unique relationship across the study variables. Specifically, avoidant attachment was positively related with externalizing symptoms of Disaffiliativeness (Table 8); however, this relationship only approached the set threshold for meaningful significance.

Table 5

Zero-Order Correlations Between ECR-R Subscale Scores and SDI – 4.0 Higher-Order Component Scores

Measure	1	2	3	4	5	6	7	8	9
1. ECR-R Anxiety	---								
2. ECR-R Avoidance	.62***	---							
3. Pain & Role Playing Component 1	.18***	.12*	---						
4. Hostility & Exploiting the Vulnerable/Component 2	.19***	.12**	.56***	---					
5. Sexualized Attachment Component 3	.33***	.25***	.45***	.57***	---				
6. Isolated & Self-Stimulation Component 4	.31***	.24***	.49***	.59***	.53***	---			
7. Swinging & Public Anonymous Sex/Component 5	.13**	.08	.61***	.62***	.50***	.51***	---		
8. Networking for Anonymous Sex/Component 6	.09*	.07	.50***	.39***	.44***	.46***	.60***	---	
9. Drug & Sex Trade Use/Component 7	.18***	.19***	.49***	.52***	.57***	.48***	.55***	.47***	---

Note. ECR-R = Experiences in Close Relationships-Revised; SDI – 4.0 = Sexual Dependency Inventory – Version 4.0.

*$p < .05$. **$p < .01$. ***$p < .001$

Table 6

Zero-Order Correlations Between ECR-R Subscale Scores and MMPI-2-RF Higher-Order and Restructured Clinical Scale Scores

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. ECR-R Anx	---													
2. ECR-R Avoid	.63***	---												
3. EID	.43***	.28***	---											
4. THD	.27***	.13**	.44***	---										
5. BXD	.24***	.12**	.35***	.44***	---									
6. RCd	.44***	.26***	.92***	.45***	.38***	---								
7. RC1	.23***	.12**	.50***	.49***	.29***	.54***	---							
8. RC2	.23***	.15**	.72***	.17***	.11*	.60***	.29***	---						
9. RC3	.32***	.20***	.48***	.50***	.37***	.47***	.38***	.17***	---					
10. RC4	.25***	.14**	.39***	.37***	.88***	.43***	.28***	.19***	.29***	---				
11. RC6	.28***	.14**	.47***	.72***	.39***	.46***	.38***	.22***	.50***	.35***	---			
12. RC7	.40***	.24***	.81***	.60***	.41***	.75***	.54***	.42***	.56***	.40***	.55***	---		
13. RC8	.24**	.11*	.44***	.86***	.47***	.47***	.55***	.17***	.45***	.40***	.50***	.62***	---	
14. RC9	.28***	.13**	.38***	.57***	.71***	.43***	.41***	.00	.55***	.51***	.50***	.56***	.59***	---

Note. ECR-R = Experiences in Close Relationships-Revised; ECR-Anx = Anxiety subscale; ECR-R Avoid = Avoidance subscale; EID = Emotional/Internalizing Dysfunction; THD = Thought Dysfunction; BXD = Behavioral/ Externalizing Dysfunction; RCd = Demoralization; RC1 = Somatic Complaints; RC2 = Low Positive Emotions; RC3 = Cynicism; RC4 = Antisocial Behavior; RC6 = Ideas of Persecution; RC7 = Dysfunctional Negative Emotions; RC8 = Aberrant Experiences; RC9 = Hypomanic Activation.

*$p < .05$. **$p < .01$. ***$p < .001$

Table 7

Zero-Order Correlations Between ECR-R Subscale Scores and MMPI-2-RF Specific Problems Somatic/Cognitive and Internalizing Scales Scores

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. ECRR Anx	---															
2. ECRR Avoid	.63***	---														
3. S/C MLS	.25***	.13**	---													
4. S/C GIC	.16**	.08	.41***	---												
5. S/C HPC	.19***	.05	.42***	.39***	---											
6. S/C NUC	.16**	.13**	.34***	.30***	.41***	---										
7. S/C COG	.26***	.15**	.51***	.41***	.41***	.47***	---									
8. IN SUI	.16***	.04	.37***	.27***	.27***	.24***	.39***	---								
9. IN HLP	.23***	.11*	.44***	.31***	.25***	.21***	.41***	.38***	---							
10. IN SFD	.41***	25***	.47***	.29***	.29***	.34***	.54***	.31***	.41***	---						
11. IN NFC	.29***	.16**	.44***	.28***	.32***	.34***	.60***	.27***	.48***	.59***	---					
12. IN STW	.33***	18***	.38***	.40***	.34***	.34***	.53***	.27***	.37***	.53***	.52***	---				
13. IN AXY	.26***	.10*	.49***	.48***	.34***	.41***	.50***	.35***	.40***	.51***	.47***	.63***	---			
14. IN ANP	.20***	.10*	.24***	.22***	.27***	.28***	.44***	.15**	.22***	.35***	.33***	.43***	.41***	---		
15. IN BRF	.20***	.07	.30***	.30***	.29***	.35***	.40***	.18***	.24***	.29***	.40***	.39***	.43***	.30***	---	
16. IN MSF	.13**	.05	.07	.15**	.20***	.25***	.20***	.10*	.18***	.17***	.22***	.26***	.23***	.26***	.41***	---

Note. ECR-R = Experiences in Close Relationships-Revised Scale; ECR-R Anx = Anxiety subscale; ECR-R Avoid = Avoidant subscale; MMPI-2-RF = Minnesota Multiphasic Personality Inventory-2-Restructured Form; S/C = Somatic/Cognitive Subscales; IN = Internalizing Subscales; MLS = Malaise; GIC = Gastrointestinal Complaints; HPC = Head Pain Complaints; NUC = Neurological Complaints; COG = Cognitive Complaints; SUI = Suicidal/Death Ideation; HLP = Helplessness/Hopelessness; SFD = Self-Doubt; NFC = Inefficacy; STW = Stress/Worry; AXY = Anxiety; ANP = Anger Proneness; BRF = Behavior-Restricting Fears; MSF = Multiple Specific Fears.

*$p < .05$. **$p < .01$. ***$p < .001$

Table 8

Zero-Order Correlations Between ECR-R Subscale Scores and MMPI-2-RF Specific Problems Externalizing and Interpersonal Scales Scores

Measure	1	2	3	4	5	6	7	8	9	10	11
1. ECR-R Anx	---										
2. ECR-R Avoid	.63***	---									
3. EX JCP	.17***	.06	---								
4. EX SUB	.18***	.12**	.33***	---							
5. EX AGG	.23***	.12*	.40***	.27***	---						
6. EX ACT	.23***	.09*	.26***	.21***	.45***	---					
7. IP FML	.30***	.20***	.30***	.21***	.51***	.39***	---				
8. IP IPP	.05	.11*	-.13**	-.07	-.09*	-.15**	-.02	---			
9. IP SAV	.09*	.14**	-.01	-.05	.09*	-.13**	.06	.32***	---		
10. IP SHY	.24***	.16**	.06	.10*	.17***	.10*	.15**	.31***	.57***	---	
11. IP DSF	.17***	.23***	.04	.09*	.23***	.09*	.22***	.15**	.38***	.30***	---

Note. ECR-R = Experiences in Close Relationships-Revised Scale; ECR-R Anx = Anxiety subscale; ECR-R Avoid = Avoidant subscale; MMPI-2-RF = Minnesota Multiphasic Personality Inventory-2-Restructured Form; EX = Externalizing Subscales; IP = Interpersonal Subscales; JCP = Juvenile Conduct Problems; SUB = Substance Abuse; AGG = Aggression; ACT = Activation; FML = Family Problems; IPP = Interpersonal Passivity; SAV = Social Avoidance; SHY = Shyness; DSF = Disaffiliativeness.

*$p < .05$. **$p < .01$. ***$p < .001$

Table 9

Zero-Order Correlations Between ECR-R Subscale Scores and MMPI-2-RF PSY-5-R Scale Scores

Measure	1	2	3	4	5	6	7
1. ECR-R Anxiety	---						
2. ECR-R Avoidance	.63***	---					
3. AGGR-r	.02	-.03	---				
4. PSYC-r	.23***	.10*	.20***	---			
5. DISC-r	.20***	.08*	.31***	.34***	---		
6. NEGE-r	.37***	.23***	.15**	.56***	.33***	---	
7. INTR-r	.10*	.13**	-.31***	-.01	-.16**	.10*	---

Note. ECR-R = Experiences in Close Relationships-Revised; MMPI-2-RF = Minnesota Multiphasic Personality Inventory -2-Restructured Form; PSY-5-R = Personality Psychopathology Five-Revised; AGGR-r = Aggressiveness-R; PSYC-r = Psychoticism-R; DISC-r = Disconstraint-R; NEGE-r = Negative Emotionality/Neuroticism-R; INTR-r = Introversion/Low Positive Emotionality-R. *$p < .05$. **$p < .01$. ***$p < .001$

Regression Analyses Examining Predictors of Anxious and Avoidant Attachment Separately

Multiple regression analyses were conducted to examine hypothesized relationships between dimensions of insecure romantic attachment (i.e., high anxious versus high avoidant attachment), with constructs of psychopathology, disordered personality traits, and problematic sexual behaviors and preoccupations, using data from the ECR-R, MMPI-2-RF, and SDI-4.0, correspondingly. Results of the multiple regression analyses predicting anxious attachment are presented first (Tables 10-19).

In the first multiple regression model, the Higher-Order Scales from the MMPI-2-RF, comprising Emotional/Internalizing Dysfunction, Thought Dysfunction, and

Behavioral/Externalizing Dysfunction, were simultaneously entered onto ECR-R Anxiety. As presented in Table 10, the overall model was statistically significant, $F(3, 399) = 32.46$, $p < .001$, accounting for approximately 19% of the variance of anxious attachment ($R^2 = .196$, Adjusted $R^2 = .190$). Anxious attachment was primarily predicted by EID ($\beta = .369$, $p < .001$). EID received the strongest weight in the model and uniquely explained 10.56% of the variance in the model after taking the effects of the other predictors into account.

Table 10

Results of Multiple Regression Analysis of MMPI-2-RF Higher-Order Scales Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlations		
						Zero	Partial	Part
	32.46	< .001	.196	.190				
EID					.369***	.43	.34	.33
THD					.068	.27	.06	.06
BXD					.084	.24	.08	.08

Note. MMPI-2-RF = Minnesota Multiphasic Personality Inventory -2- Restructured Form; ECR-R = Experiences in Close Relationships-Revised; EID = Emotional/Internalizing Dysfunction. THD = Thought Dysfunction. BXD = Behavioral/ Externalizing Dysfunction. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the second multiple regression model, the MMPI-2-RF Restructured Clinical scales (Demoralization, Somatic Complaints, Low Positive Emotions, Cynicism, Antisocial Behavior, Ideas of Persecution, Dysfunctional Negative Emotions, Aberrant Experiences, and Hypomanic Activation) were simultaneously entered onto ECR-R Anxiety (Table 11). The model was statistically significant, $F(9, 393) = 12.125$, $p < .001$, and accounted for approximately 20% of the variance of anxious attachment ($R^2 = .217$, Adjusted $R^2 = .199$). Anxious attachment was primarily predicted by RCd/

Demoralization (β = .309, p < .001). After taking the effects of other predictors into account, RCd uniquely explained 2.86% of the variance in the model.

Table 11

Results of Multiple Regression Analysis of MMPI-2-RF Restructured Clinical Scales Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	12.13	< .001	.217	.199				
RCd					.309***	.43	.19	.17
RC1					-.047	.23	-.04	-.04
RC2					-.030	.23	-.03	-.02
RC3					.098	.32	.08	.07
RC4					.058	.25	.05	.05
RC6					.025	.27	.02	.02
RC7					.133	.40	.08	.07
RC8					-.059	.24	-.05	-.04
RC9					.035	.28	.03	.02

Note. RCd = Demoralization. RC1 = Somatic Complaints. RC2 = Low Positive Emotions. RC3 = Cynicism. RC4 = Antisocial Behavior. RC6 = Ideas of Persecution. RC7 = Dysfunctional Negative Emotions. RC8 = Aberrant Experiences. RC9 = Hypomanic Activation. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

In the third multiple regression model, the MMPI-2-RF Specific Problems Somatic/Cognitive subscales, comprising Malaise, GI Complaints, Head Pain Complaints, Neurological Complaints, and Cognitive Complaints, were simultaneously entered onto ECR-R Anxiety. As presented in Table 12, the prediction model was statistically significant, $F(5, 397) = 7.773$, $p < .001$, and accounted for approximately 8% of the variance of anxious attachment ($R^2 = .089$, Adjusted $R^2 = .078$). Anxious attachment was primarily predicted by Malaise (β = .139, $p < .05$) and Cognitive Complaints (β = .159, $p < .05$). After taking the effects of other predictors into account,

Cognitive Complaints uniquely explained 1.51% of the variance in the model, whereas Malaise uniquely explained 1.25% of the variance.

Table 12

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Somatic/ Cognitive Subscales Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	7.77	< .001	.089	.078				
MLS					.139*	.25	.12	.11
GIC					.010	.15	.01	.01
HPC					.056	.19	.05	.05
NUC					.003	.16	.00	.00
COG					.159*	.26	.13	.12

Note. MLS = Malaise. GIC = GI Complaints. HPC = Head Pain Complaints. NUC = Neurological Complaints, COG = Cognitive Complaints. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the fourth multiple regression model, the MMPI-2-RF Specific Problems Internalizing subscales were simultaneously entered onto ECR-R Anxiety (Table 13). These scales included Suicidal/Death Ideation, Helplessness/ Hopelessness, Self-Doubt, Inefficacy, Stress/Worry, Anxiety, Anger Proneness, Behavior-Restricting Fears, and Multiple Specific Fears. The prediction model was statistically significant, $F(9, 393) = 9.913$, $p < .001$, and accounted for approximately 17% of the variance of anxious attachment ($R^2 = .185$, Adjusted $R^2 = .166$). Anxious attachment was primarily predicted by Self-Doubt (β = .307, $p < .001$) and Stress/Worry (β = .140, $p < .05$). After taking the effects of other predictors into account, Self-Doubt uniquely explained 5.15% of the variance in the model. Additionally, Stress/Worry accounted for less than 1% of the unique variance of anxious attachment.

Table 13

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Internalizing Subscales Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
SUI	9.91	< .001	.185	.166	.012	.16	.01	.01
HLP					.048	.23	.04	.04
SFD					.307***	.41	.24	.23
NFC					-.002	.29	-.00	-.00
STW					.140*	.33	.11	.10
AXY					-.041	.26	-.03	-.03
ANP					.021	.20	.02	.02
BRF					.044	.19	.04	.04
MSF					.005	.12	.01	.01

Note. SUI = Suicidal/Death Ideation. HLP = Helplessness/Hopelessness. SFD = Self-Doubt. NFC = Inefficacy. STW = Stress/Worry. AXY = Anxiety. ANP = Anger Proneness. BRF = Behavior-Restricting Fears. MSF = Multiple Specific Fears. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

In the fifth multiple regression model, the MMPI-2-RF Specific Problems Externalizing subscales, comprising Juvenile Conduct Problems, Substance Abuse, Aggression, and Activation, were simultaneously entered onto ECR-R Anxiety (Table 14). The prediction model was statistically significant, $F(4, 398) = 9.629$, $p < .001$, and accounted for approximately 8% of the variance in anxious attachment ($R^2 = .088$, Adjusted $R^2 = .079$). Anxious attachment was primarily predicted by higher scores on Activation (β = .146, $p < .01$) and Aggression (β = .120, $p < .05$). After taking the effects of other predictors into account, Activation uniquely explained 1.66% of the variance in the model, and Aggression uniquely explained 1.02% of variance in the model.

Table 14

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Externalizing Subscales Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	9.63	< .001	.088	.079				
JCP					.048	.17	.05	.04
SUB					.101	.18	.10	.09
AGG					.120*	.23	.11	.10
ACT					.146**	.23	.13	.13

Note. JCP = Juvenile Conduct Problems. SUB = Substance Abuse. AGG = Aggression. ACT = Activation. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the sixth multiple regression model, the Specific Problems Interpersonal subscales, comprising Family Problems, Interpersonal Passivity, Social Avoidance, Shyness, and Disaffiliativeness, were simultaneously entered onto ECR-R Anxiety (Table 15). The model was statistically significant, $F(5, 397) = 12.368$, $p < .001$, and accounted for approximately 12% of the variance of anxious attachment ($R^2 = .135$, Adjusted $R^2 = .124$). Anxious attachment was primarily predicted by higher scores on Family Problems ($\beta = .254$, $p < .001$) and Shyness ($\beta = .223$, $p < .001$). The relationship between Family Problems and anxious attachment was examined after controlling for the effects of the other predictors in the model, and Family Problems uniquely explained 6.05% of the variance in the model. Additionally, Shyness uniquely explained 3.17% of the variance in the model, after taking the effects of the other predictors into account.

Table 15

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Interpersonal Subscales Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	12.37	< .001	.135	.124				
FML					.254***	.30	.26	.25
IPP					-.003	.05	-.00	-.00
SAV					-.080	.09	-.07	-.06
SHY					.223***	.24	.19	.18
DSF					.079	.17	.08	.07

Note. FML = Family Problems. IPP = Interpersonal Passivity. SAV = Social Avoidance. SHY = Shyness. DSF = Disaffiliativeness. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

In the seventh multiple regression model, the Personality Psychopathology Five-R (PSY-5-R) scales, comprising Aggressiveness-R, Psychoticism-R, Disconstraint-R, Negative Emotionality/Neuroticism-R, and Introversion/Low Positive Emotionality-R, were simultaneously entered onto ECR-R Anxiety (Table 16). The prediction model was statistically significant, $F(5, 397) = 14.164$, $p < .001$. The combined PSY-5-R scales accounted for approximately 14% of the variance of anxious attachment ($R^2 = .151$, Adjusted $R^2 = .141$). Both Negative Emotionality/Neuroticism-R (β = .322, $p < .001$), and Disconstraint-R (β = .115, $p < .05$) were significant predictors of anxious attachment in the model. After controlling for the effects of the other predictors in the model, Negative Emotionality/Neuroticism-R uniquely explained 6.61% of the variance in the model. Additionally, Disconstraint-R uniquely explained just over 1.00% of the variance in the model.

Table 16

Results of Multiple Regression Analysis of MMPI-2-RF PSY-5-R Scales Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	14.16	< .001	.151	.141				
AGGR-r					-.046	.02	-.05	-.04
PSYC-r					.017	.23	.02	.01
DISC-r					.115*	.20	.11	.10
NEGE-r					.322***	.37	.27	.26
INTR-r					.071	.10	.07	.07

Note. AGGR-r = Aggressiveness-R. PSYC-r = Psychoticism-R. DISC-r = Disconstraint-R. NEGE-r = Negative Emotionality/ Neuroticism-R. INTR-r = Introversion/Low Positive Emotionality-R. The predictors were entered simultaneously into the model. *p < .05. **p < .01. ***p < .001.

In the eighth multiple regression model, the SDI – 4.0 Higher-Order scales, comprising Pain and Role Playing (H-O 1), Hostility and Exploiting the Vulnerable (H-O 2), Sexualized Attachment (H-O 3), Isolated and Self Stimulation (H-O 4), Swinging and Public Anonymous Sex (H-O 5), Networking for Anonymous Sex (H-O 6), and Drug and Sex Trade Use (H-O 7), were simultaneously entered onto ECR-R Anxiety (Table 17). The prediction model was statistically significant, $F(7, 392) = 10.374$, $p < .001$, and accounted for approximately 14% of the variance of anxious attachment ($R^2 = .156$, Adjusted $R^2 = .141$). Anxious attachment was primarily predicted by higher levels of Sexualized Attachment (β = .308, $p < .001$) and Isolated and Self-Stimulation (β = .259, $p < .001$) and by lower levels of Networking for Anonymous Sex (β = -.122, $p < .05$). Each of the three scales was examined separately, while also controlling for the effects of the other predictors in the model. Results indicated that there was a unique relationship between the Sexualized Attachment component (H-O 3) and anxious attachment, with the

predictor explaining 5.06% unique variance of anxious attachment. Next, after taking the effects of other variables into account, the relationship between the Isolated and Self-Stimulation component (H-O 4) and anxious attachment was examined, and it was determined that the Isolated and Self-Stimulation component uniquely contributed 3.65% variance to the model. Lastly, the relationship between the Networking for Anonymous Sex component (H-O 6) and anxious attachment were examined, after controlling for the effects of other predictors on anxious attachment. Networking for Anonymous Sex was inversely associated with anxious attachment and contributed less than 1.00% unique variance to the model.

Table 17

Results of Multiple Regression Analysis of SDI – 4.0 Higher-Order Components Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	10.37	< .001	.156	.141				
H-O 1					.060	.18	.05	.04
H-O 2					-.082	.19	-.06	-.05
H-O 3					.308***	.33	.24	.23
H-O 4					.259***	.31	.20	.19
H-O 5					-.057	.13	-.04	-.04
H-O 6					-.122*	.09	-.10	-.09
H-O 7					-.021	.18	-.02	-.02

Note. H-O 1 = Pain and Role Playing. H-O 2 = Hostility & Exploiting the Vulnerable. H-O 3 = Sexualized Attachment. H-O 4 = Isolated & Self-Stimulation. H-O 5 = Swinging & Public Anonymous Sex. H-O 6 = Networking for Anonymous Sex. H-O 7 = Drug & Sex Trade Use. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

Post-Hoc Analyses Predicting Anxious Attachment

Post-hoc analyses were then conducted for the three SDI – 4.0 H-O scales that were significant predictors of anxious attachment in the regression model (e.g., Sexualized Attachment/H-O 3, and Isolated and Self-Stimulation/H-O 4). Specifically, separate multiple regressions were conducted for each H-O scale, using the corresponding behavior and preoccupation subscales in the prediction model for each Higher-Order component. The post-hoc regression analyses were performed to identify which subscales contributed unique variance to the model when entered simultaneously, as well as which subscales contributed individually at the part and partial correlation level, despite whether they were rendered insignificant by the simultaneous entry.

In the first post-hoc multiple regression model predicting anxious attachment, the SDI – 4.0 subscales for the Sexualized Attachment component (H-O 3) were simultaneously entered onto ECR-R Anxiety (Table 18). The prediction model was statistically significant, $F(6, 396) = 14.349$, $p < .001$, accounting for approximately 17% of the shared variance in anxious attachment ($R^2 = .179$, Adjusted $R^2 = .166$). Anxious attachment was primarily predicted by the Behavior subscale of Relationship Addiction ($\beta = .349$, $p < .01$), which contributed 1.69% unique variance to the model after controlling for the effects of other predictors on anxious attachment.

Table 18

Results of Post-Hoc Multiple Regression Analysis of SDI – 4.0 Sexualized Attachment/ Component 3 Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
Preoccupation with Relationships (P)	14.35	< .001	.179	.166	.152	.37	.06	.05
Exploitive Sex, Trust (B)					-.031	.01	-.03	-.03
Conquest (B)					-.119	.16	-.09	-.08
Relationship Addiction (B)					.349**	.40	.14	.13
Intrusive Sex (B)					.056	.20	.05	.05
Paying for Sex, Power (B)					-.102	.07	-.10	-.09

Note. H-O = Higher-Order. (P) = Preoccupation scales. (B) = Behavior scales. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

In the second post-hoc multiple regression model predicting anxious attachment (Table 19), the SDI – 4.0 subscales for the Isolated and Self-Stimulation component (H-O 4) were simultaneously entered onto ECR-R Anxiety. The prediction model was statistically significant, $F(4, 398) = 11.763$, $p < .001$, accounting for approximately 10% of the shared variance of anxious attachment ($R^2 = .106$, Adjusted $R^2 = .097$). Anxious attachment was primarily predicted by the Behavior subscale of Fantasy and Consequences ($\beta = .298$, $p < .05$), which uniquely contributed just over 1% unique variance to the model after controlling for the effects of other predictors on anxious attachment.

Table 19

Results of Post-Hoc Multiple Regression Analysis of SDI – 4.0 Isolated and Self-Stimulation/Component 4 Predicting ECR-R Anxious Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	11.76	< .001	.106	.097				
Isolated Fantasizing (P)					-.014	.30	-.01	-.01
Fantasy & Consequences (B)					.298*	.32	.13	.12
Pornography Use (B)					.056	.21	.04	.04
Voyeurism & Covert Intrusions (B)					.009	.19	.01	.01

Note. H-O = Higher-Order. (P) = Preoccupation scales. (B) = Behavior scales. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

The next set of analyses was conducted to examine relationships between avoidant attachment with constructs of psychopathology, disordered personality traits, and higher-order constructs of problematic sexual behaviors and preoccupations. Results of the multiple regression analyses predicting avoidant attachment are summarized in Tables 20 through 28.

In the first multiple regression model examining avoidant attachment, the three Higher-Order scales from the MMPI-2-RF, comprising Emotional/Internalizing Dysfunction (EID), Thought Dysfunction (THD), and Behavioral/Externalizing Dysfunction (BXD), were simultaneously entered onto ECR-R Avoidance (Table 20). The prediction model was statistically significant, $F(3, 398) = 11.287$, $p < .001$, and accounted for approximately 7% of the variance of avoidant attachment ($R^2 = .078$, Adjusted $R^2 = .071$). Avoidant attachment was primarily predicted by the Emotional/

Internalizing Dysfunction scale (β = .271, $p < .001$). After controlling for the effects of other variables on the outcome, the EID scale uniquely explained 5.71% of the variance in the model.

Table 20

Results of Multiple Regression Analysis of MMPI-2-RF Higher-Order Scales Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	11.29	< .001	.078	.071				
EID					.271***	.28	.24	.24
THD					-.002	.13	-.00	-.00
BXD					.026	.12	.02	.02

Note. EID = Emotional/Internalizing Dysfunction. THD = Thought Dysfunction. BXD = Behavioral/Externalizing Dysfunction. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the second multiple regression model, the MMPI-2-RF Restructured Clinical scales (Demoralization, Somatic Complaints, Low Positive Emotions, Cynicism, Antisocial Behavior, Ideas of Persecution, Dysfunctional Negative Emotions, Aberrant Experiences, and Hypomanic Activation) were simultaneously entered onto ECR-R Avoidance (Table 21). The prediction model was statistically significant, $F(9, 392) = 3.871$, $p < .001$, and accounted for approximately 6% of the variance of avoidant attachment ($R^2 = .082$, Adjusted $R^2 = .061$). No individual scales contributed significant variance to the model.

Table 21

Results of Multiple Regression Analysis of MMPI-2-RF Restructured Clinical Scales Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	3.87	< .001	.082	.061				
RCd					.158	.26	.09	.09
RC1					-.038	.12	-.03	-.03
RC2					-.001	.15	.00	.00
RC3					.101	.20	.08	.08
RC4					.050	.14	.04	.04
RC6					-.014	.14	-.01	-.01
RC7					.131	.24	.08	.07
RC8					-.065	.11	-.05	-.05
RC9					-.029	.13	-.02	-.02

Note. RC = Restructured Clinical. RCd = Demoralization. RC1 = Somatic Complaints. RC2 = Low Positive Emotions. RC3 = Cynicism. RC4 = Antisocial Behavior. RC6 = Ideas of Persecution. RC7 = Dysfunctional Negative Emotions. RC8 = Aberrant Experiences. RC9 = Hypomanic Activation. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the third multiple regression model, the Specific Problems Somatic/Cognitive subscales, comprising Malaise, GI Complaints, Head Pain Complaints, Neurological Complaints, and Cognitive Complaints, were simultaneously entered onto ECR-R Avoidance (Table 22). The prediction model was not considered statistically significant, and no further analyses were conducted due to lack of statistical significance of the overall model.

Table 22

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Somatic/ Cognitive Subscales Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	2.61	.025	.032	.020				
MLS					.071	.13	.06	.06
GIC					.009	.08	.01	.01
HPC					-.052	.05	-.04	-.04
NUC					.084	.13	.07	.07
COG					.092	.15	.07	.07

Note. MLS = Malaise. GIC = GI Complaints. HPC = Head Pain Complaints. NUC = Neurological Complaints, COG = Cognitive Complaints. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the fourth multiple regression model, the Specific Problems Internalizing subscales, comprising Suicidal/Death Ideation, Helplessness/Hopelessness, Self-Doubt, Inefficacy, Stress/Worry, Anxiety, Anger Proneness, Behavior-Restricting Fears, and Multiple Specific Fears, were simultaneously entered onto ECR-R Avoidance (Table 23). The prediction model was statistically significant, $F(9, 392) = 3.395$, $p < .001$, and accounted for approximately 5% of the variance of avoidant attachment ($R^2 = .072$, Adjusted $R^2 = .051$). Avoidant attachment was primarily predicted by Self-Doubt (β = .235, $p < .001$), which also uniquely explained approximately 3% of the variance in the model after taking the effects of the other predictors into account.

Table 23

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Internalizing Subscales Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	3.40	< .001	.072	.051				
SUI					-.041	.04	-.04	-.04
HLP					.016	.11	.01	.01
SFD					.235***	.25	.18	.17
NFC					.012	.16	.01	.01
STW					.109	.18	.08	.08
AXY					-.088	.10	-.06	-.06
ANP					.005	.10	.00	.00
BRF					-.008	.07	-.01	-.01
MSF					.005	.05	.01	.00

Note. SUI = Suicidal/Death Ideation. HLP = Helplessness/Hopelessness. SFD = Self-Doubt. NFC = Inefficacy. STW = Stress/Worry. AXY = Anxiety. ANP = Anger Proneness. BRF = Behavior-Restricting Fears. MSF = Multiple Specific Fears. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the fifth multiple regression model, MMPI-2-RF Specific Problems Externalizing subscales, comprising Juvenile Conduct Problems, Substance Abuse, Aggression, and Activation, were simultaneously entered onto ECR-R Avoidance (Table 24). The prediction model was not statistically significant, $F(4, 397) = 2.324$, $p = .056$. Therefore, no further analyses were completed due to lack of statistical significance of the overall model.

Table 24

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Externalizing Subscales Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	2.32	.056	.023	.013				
JCP					-.013	.06	-.01	-.01
SUB					.094	.12	.09	.09
AGG					.077	.12	.07	.06
ACT					.040	.09	.04	.04

Note. JCP = Juvenile Conduct Problems. SUB = Substance Abuse. AGG = Aggression. ACT = Activation. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the sixth multiple regression model, the MMPI-2-RF Specific Problems Interpersonal subscales, comprising Family Problems, Interpersonal Passivity, Social Avoidance, Shyness, and Disaffiliativeness, were simultaneously entered onto ECR-R Avoidance (Table 25). The prediction model was statistically significant, $F(5, 396) = 7.532$, $p < .001$, and accounted for approximately 8% of the variance of avoidant attachment ($R^2 = .087$, Adjusted $R^2 = .075$). Avoidant attachment was primarily predicted by Disaffiliativeness (β = .166, $p < .01$) and Family Problems (β = .152, $p < .01$). When taking the effects of other variables into account, Disaffiliativeness and Family Problems were each uniquely related with avoidant attachment, with Disaffiliativeness uniquely explaining 2.22% of the variance in the model and Family Problems uniquely explaining 2.16% of the variance in the model.

Table 25

Results of Multiple Regression Analysis of MMPI-2-RF Specific Problems Interpersonal Subscales Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	7.53	< .001	.087	.075				
FML					.152**	.20	.15	.15
IPP					.064	.11	.06	.06
SAV					.006	.14	.01	.01
SHY					.066	.16	.06	.05
DSF					.166**	.23	.15	.15

Note. FML = Family Problems. IPP = Interpersonal Passivity. SAV = Social Avoidance. SHY = Shyness. DSF = Disaffiliativeness. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

In the seventh multiple regression model, the Personality Psychopathology Five-R (PSY-5-R) scales, comprising Aggressiveness, Psychoticism, Disconstraint, Negative-Emotionality/Neuroticism, and Introversion/Low Positive Emotionality, were simultaneously entered onto ECR-R Avoidance (Table 26). The prediction model was statistically significant, $F(5, 396) = 5.542$, $p < .001$, with the PSY-5-R scales accounting for approximately 5% of the variance of avoidant attachment ($R^2 = .065$, Adjusted $R^2 = .054$). Avoidant attachment was primarily predicted by higher levels of Negative-Emotionality/Neuroticism (β = .225, $p < .001$), and by higher levels of Introversion/Low Positive Emotionality (β = .104, $p < .05$). After controlling for the effect of other predictors on the outcome, Negative-Emotionality /Neuroticism uniquely explained 3.28% of the variance in the model. Also, Introversion/Low Positive Emotionality uniquely contributed less than 1% of the variance in the model.

Table 26

Results of Multiple Regression Analysis of MMPI-2-RF PSY-5-R Scales Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	5.54	< .001	.065	.054				
AGGR-r					-.034	-.03	-.03	-.03
PSYC-r					-.038	.10	-.03	-.03
DISC-r					.049	.08	.05	.04
NEGE-r					.225***	.23	.18	.12
INTR-r					.104*	.13	.10	.10

Note. AGGR-r = Aggressiveness. PSYC-r = Psychoticism. DISC-r = Disconstraint. NEGE-r = Negative-Emotionality/ Neuroticism. INTR-r = Introversion/Low Positive Emotionality. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

In the eighth multiple regression model, the SDI – 4.0 Higher-Order scales, comprising Pain and Role Playing (H-O 1), Hostility and Exploiting the Vulnerable (H-O 2), Sexualized Attachment (H-O 3), Isolated and Self Stimulation (H-O 4), Swinging and Public Anonymous Sex (H-O 5), Networking for Anonymous Sex (H-O 6), and Drug and Sex Trade Use (H-O 7), were simultaneously entered onto ECR-R Avoidance (Table 27). The prediction model was statistically significant, $F(7, 391) = 6.144$, $p < .001$, accounting for approximately 8% of the variance of avoidant attachment ($R^2 = .099$, Adjusted $R^2 = .083$). Avoidant attachment was primarily predicted by Sexualized Attachment/H-O 3 ($\beta = .216$, $p < .01$) and Isolated and Self-Stimulation/H-O 4 ($\beta = .205$, $p < .01$). After controlling for the effect of other predictors on the outcome, Sexualized Attachment and Isolated and Self-Stimulation each uniquely explained 2.56% of the variance in the model.

Table 27

Results of Multiple Regression Analysis of SDI – 4.0 Higher-Order Components Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	6.14	< .001	.099	.083				
H-O 1					.018	.12	.01	.01
H-O 2					-.100	.12	-.07	-.07
H-O 3					.216**	.25	.16	.16
H-O 4					.205**	.24	.16	.15
H-O 5					-.081	.08	-.06	-.05
H-O 6					-.087	.07	-.07	-.07
H-O 7					.099	.19	.08	.07

Note. H-O 1 = Pain and Role Playing. H-O 2 = Hostility & Exploiting the Vulnerable. H-O 3 = Sexualized Attachment. H-O 4 = Isolated & Self-Stimulation. H-O 5 = Swinging & Public Anonymous Sex. H-O 6 = Networking for Anonymous Sex. H-O 7 = Drug & Sex Trade Use. The predictors were entered simultaneously into the model.

*p < .05. **p < .01. ***p < .001.

Post-Hoc Analyses Predicting Avoidant Attachment

As with anxious attachment, post-hoc analyses were then conducted on SDI – 4.0 Higher-Order scales that were significant predictors of avoidant attachment in the regression model (e.g., Sexualized Attachment/H-O 3 and Isolated and Self-Stimulation/ H-O 4). Separate multiple regressions were conducted for both of the H-O scales, using the corresponding behavior and preoccupation subscales in the prediction model for each H-O component. The post-hoc regression analyses were performed to identify which subscales contributed unique variance to the model when entered simultaneously, as well as which subscales contributed individually at the part and partial correlation level, despite whether they were rendered insignificant by the simultaneous entry. The results of these analyses are presented in Table 28.

Table 28

Results of Post-Hoc Multiple Regression Analysis of SDI – 4.0 Sexualized Attachment/ Component 3 Predicting ECR-R Avoidant Attachment

Predictor	F	*p*	R^2	Adjusted R^2	β	Correlation		
						Zero	Partial	Part
	5.69	< .001	.080	.066				
Preoccupation with Relationships (P)					.009	.26	.00	.00
Exploitive Sex, Trust (B)					-.027	.04	-.03	-.03
Conquest (B)					.037	.18	.03	.03
Relationship Addiction (B)					.267*	.28	.10	.10
Intrusive Sex (B)					-.016	.13	-.01	-.01
Paying for Sex, Power (B)					-.008	.11	-.01	-.01

Note. (P) = Preoccupation scales. (B) = Behavior scales. The predictors were entered simultaneously into the model.

*$p < .05$. **$p < .01$. ***$p < .001$.

In the post-hoc multiple regression model (Table 28), the Preoccupation and Behavior subscales for Sexualized Attachment (H-O 3) were simultaneously entered onto ECR-R Avoidance. The prediction model was statistically significant, $F(6, 395) = 5.688$, $p < .001$, accounting for approximately 7% of the variance of avoidant attachment ($R^2 = .080$, Adjusted $R^2 = .066$). Avoidant attachment was primarily predicted by the Behavior subscale of Relationship Addiction ($\beta = .267$, $p < .05$), which contributed approximately 1% unique variance to the model.

CHAPTER IV

DISCUSSION

The purpose of the current study was to explore whether insecure romantic attachment styles (anxious and avoidant) were uniquely associated with constructs of psychopathology, disordered personality traits, and dimensions of problematic sexual behaviors and preoccupations in a clinical sample of individuals being treated for sexual addiction. Hypothesis 1 stated that anxious attachment would be uniquely related to symptoms of psychopathology, including broad emotional disturbances and internalizing disorder symptoms, such as feelings of demoralization, diffuse physical health complaints, lack of positive emotional responsiveness, and maladaptive negative emotions. Additionally, it was hypothesized that anxious attachment would also be uniquely related to more specific symptoms of psychopathology, including interpersonal problems including symptoms of interpersonal passivity and feelings of social inhibition, somatic and cognitive dysfunctions such as symptoms of malaise, complaints of gastrointestinal and head pain, and difficulties with memory, as well as internalizing symptoms including pervasive anxiety, self-doubt, and feelings of hopeless and inefficacy. The results partially supported Hypothesis 1. As hypothesized, anxious attachment was associated with broad constructs of psychopathology related to emotional and internalizing disturbances, demoralization, and a small number of more specific symptoms related to mood and emotional dysfunctions. Greater internalizing symptoms were expected as significant predictors, but were not supported. Contrary to expectation, broad constructs related to disordered thinking were highly correlated with anxious attachment. Additionally, at the level of specific symptoms, externalizing symptoms,

including activation and aggression, and interpersonal symptoms related to family problems were significant predictors of variance in anxious attachment.

Hypothesis 2 stated that anxious attachment would be related to disordered personality traits characterized by negative emotionality, neuroticism, introversion, and anhedonia. This hypothesis was partially supported. As hypothesized, Negative Emotionality/Neuroticism was a significant predictor of anxious attachment in the regression model. It was hypothesized that disordered personality traits related to introversion and low positive emotionality would be significant predictors in the regression model; however, these were not supported by our results. Contrary to expectation, anxious attachment was also significantly predicted by personality traits related to disconstraint.

Hypothesis 3 stated that anxious attachment would be related to problematic sexual behaviors and preoccupations related to gaining and maintaining sexual relationships, and engaging in compulsive pursuit of and/or fantasies about such relationships. Emotionally related motivations, such as fears of abandonment, were also thought to associate with anxious attachment. Hypothesis 3 was partially supported. As hypothesized, the SDI – 4.0 Sexualized Attachment component was significantly associated with anxious attachment, characterized by gaining and maintaining sexual relationships, and compulsive pursuit of and/or fantasies about such relationships. Unexpectedly, anxious attachment was also significantly predicted by Isolated and Self-Stimulation/Component 4, which is associated with more isolative sexual preoccupations and fantasies, pornography use, and sexual exploitation and intrusions upon others.

After the regression models were analyzed for anxious attachment, post-hoc analyses were conducted using the SDI- 4.0 subscales, which were significantly

predictors of anxious attachment in the regression models [Sexualized Attachment (H-O 3) and Isolated and Self-Stimulation (H-O 4)]. These analyses were performed to identify which variables explained the most variance in anxious attachment and remained significant predictors when shared variance was taken by the target predictor. Results of the post-hoc analyses indicated that behaviors related to Relationship Addiction and Fantasy and Consequences contributed the most variance to anxious attachment.

Hypothesis 4 stated that avoidant attachment would be related uniquely to symptoms of psychopathology, including broad problems related to thought disturbance and externalizing behavior, such as cynicism and mistrust of others, self-referential persecutory beliefs, aberrant perceptions and thoughts, over-activation, grandiosity, and antisocial behavior. Additionally, it was hypothesized that avoidant attachment would also be uniquely related to more specific symptoms of psychopathology, including interpersonal problems such as conflictual family relationships, disaffiliativeness, and social avoidance, somatic and cognitive dysfunctions including neurological symptoms, in addition to externalizing symptoms including juvenile conduct problems, substance abuse, physical aggressiveness, and heightened behavioral activation. Hypothesis 4 was partially supported. As hypothesized, avoidant attachment was significantly predicted by more specific symptoms of interpersonal problems including disaffiliativeness and family problems. The data did not support hypotheses that avoidant attachment would be significantly predicted by broad symptoms of psychopathology associated with dysfunctional thought problems and externalizing behaviors. Additionally, regression analyses did not support hypothesized relationships between any of the RC scales, including symptoms of cynicism, antisocial behavior, and ideas of persecution, nor was avoidant attachment predicted by any of the hypothesized externalizing symptoms, such

as substance abuse and aggression. However, contrary to expectation, avoidant attachment was significantly predicted by broad symptoms of disordered mood and affect, as well as internalizing symptoms of self-doubt.

Hypothesis 5 stated that avoidant attachment would be related to disordered personality traits characterized by impulsivity, disconstraint, aggression, and unusual thought processes and perceptual experiences. Hypothesis 5 was not supported. However, contrary to expectation, personality traits related to negative emotionality and neuroticism, and Introversion and Low Positive Emotionality were significant predictors of avoidant attachment.

Hypothesis 6 stated that avoidant attachment would be related to engagement in more impersonal, anonymous, and emotionally disconnected problematic sexual behaviors and preoccupations. Sexual activities may reflect lack of intimacy with one's sexual partner and include sexual behaviors involving domination, role-playing, swinging, group sex, purchasing sex, and/or engagement in more isolative sexual preoccupations and behaviors, such as exhibition, porn use, phone sex, and preoccupations with exploiting others. Results partially supported hypothesis 6. Specifically, avoidant attachment was significantly predicted by sexual behaviors and preoccupations involving pornography use, exploitation and intrusions upon others (Isolated and Self-Stimulation/Component 4). Contrary to expectation, avoidant attachment was also significantly associated with compulsively pursuing or fantasizing about establishing and maintaining sexual relationships.

Post-hoc analyses were conducted on the SDI subscales for components 3 and 4. The post-hoc analyses revealed that the Relationship Addiction behavior subscale was a

moderately significant predictor of avoidant attachment. Additionally, avoidant attachment was significantly related to the Fantasy and Consequences behavior subscales.

Conclusions

The results of the current study suggest clinically significant similarities among individuals with anxious and avoidant attachment as demonstrated by shared features of psychopathology, disordered personality, and problematic sexual behaviors. These findings may be due to several reasons. Many of the shared symptoms across these two insecure attachment styles involve negative emotionality. Therefore, it is suggested that individuals with insecure romantic attachment also experience negative emotionality, which may serve as a predisposing risk factor for insecure attachment. Broad symptoms of psychopathology related to dysfunctional mood and negative emotions were endorsed by both the anxious and avoidant attachment groups. Therefore, similar presentations of problematic sexual behavior and preoccupations may be related with negative mood-related psychopathology.

Whereas several shared symptoms of psychopathology, disordered personality, and problematic sexual behaviors were identified as significant predictors of both anxious and avoidant attachment, unique differences were observed, especially related to anxious attachment. Specifically, while broad and higher-order constructs lacked specificity between the two insecure attachment styles, the more narrow and detailed symptoms on the MMPI-2-RF Specific Problems Scales were where greater differences between attachment styles were noted. As noted previously, externalizing symptoms were expected to significantly relate with avoidant attachment, but uniquely predicted anxious attachment. Interpersonal problems were expected to relate more with anxiously attached individuals. Also unexpected, personality traits related to disconstraint were significantly

associated with anxious attachment. It had been expected that symptoms related to acting-out behaviors and externalizing behaviors, including disconstraint, would relate to avoidant attachment. Disconstraint in particular may be a factor related to our sample. Specifically, individuals in treatment for symptoms related to sex addiction would be expected to also score high on symptoms of disconstraint.

The current study sought to combine research on adult romantic attachment with both comorbid psychopathology and personality symptoms as well as symptoms of problematic sexual behaviors. Many previous studies have examined associations between insecure adult romantic attachment styles with symptoms of psychopathology (e.g., Agrawal et al., 2004; Jones, 1996), and have examined comorbid psychopathology with problematic sexual behaviors (e.g., Curnoe & Langevin, 2002; Reid & Carpenter, 2009). However, there is a small but growing fund of empirical studies examining problematic sexual behavior and its potential correlates.

Links to Previous Literature

The results of the current study have provided additional research findings regarding correlates of psychopathology and disordered personality co-occurring in individuals with problematic sexual behaviors. The sample of sexual addicts in the current study demonstrated clinically significant elevations across a wide variety of symptoms of psychopathology and disordered personality, as demonstrated by elevations in scores on the MMPI-2-RF. These findings suggest heterogeneity of psychopathology in our clinical sample of sex addicts, similar to findings reported by Reid and Carpenter (2009) in their study utilizing the MMPI-2 Restructured Clinical and PSY-5 revised scales with a sample of hypersexual patients. Specifically, they reported that over half of their sample endorsed experiencing psychopathological symptoms within the clinical

range of severity. Additionally, a significant number of participants demonstrated small elevations across numerous scales, suggesting heterogeneous psychopathological symptom presentation among those individuals. In contrast to Reid and Carpenter's (2009) study, results from the SDI – 4.0 in the current study suggested more homogeneous problematic sexual behaviors endorsed by our sample of sex addicts.

Strengths and Limitations of Current Study

There were several limitations in the current study. First, the subsample of data utilized was limited to males only, due to the low base rate of females in the overall sample. Previous researchers have also found low base rates of females in treatment for sexual addiction (Arnau et al., 2014; Carnes et al., 2010). With fewer females in treatment, it is difficult to establish an accurate prevalence rate. A greater problem is that females are frequently excluded from studies involving problematic sexual behaviors due to the typically low sample numbers compared to male participants. With such a longer time requirement necessary to collect sufficient research data on female participants, many researchers opt to include only males in their research on sexual addiction. Unfortunately, this gender disparity in research requires that assumptions regarding proper treatment and related issues must be made based on findings with males. Additionally, the sample was comprised of larger numbers of men who identified as heterosexual and reported their ethnicity as White. Therefore, the generalizability of these results may be somewhat limited to this population. As indicated by the small number of females originally in our sample, there is a low base rate of gay men, lesbians, bisexuals, and individuals of diverse ethnicities who seek treatment (Carnes et al., 2010). It is recommended that future research involving problematic sexual behaviors attempt to collect data on more diverse populations, to include women, individuals who identify as

gay or bisexual, as well as more diverse ethnicities. However, strengths of the current study included the use of updated and revised measurement instruments, including the ECR-R, MMPI-2-RF, and the SDI – 4.0. Their use may provide results possessing increased validity and reliability than those of previous studies implementing older assessment instruments. Lastly, an additional strength of the current study is the use of a clinical sample, which increases generalizability of these results to other individuals in treatment settings.

Future Directions

Few published studies have examined insecure attachment with psychopathological and disordered personality symptoms in conjunction with problematic sexual behaviors. In comparison to previous research, the current study exemplified several strengths. First, in pursuing a multifinality approach to the analysis of the results concerning insecure romantic attachment, it may contribute to our knowledge of how general influences can give rise to specific patterns of comorbidity, and allow for the identification of both shared and unique dysfunctional processes and corresponding symptomatology related to insecure attachment types. The transdiagnostic processes approach aids in the understanding of comorbid symptoms and encourages focus on the underlying processes common to multiple disorders and similarity of symptoms across different disorders, rather than applying "disorder-specific approaches" (Nolen-Hoeksema & Watkins, 2011, p. 590). Analyses were run with a focus on multifinality, such that it was expected insecure attachment to be associated with broad emotional, cognitive, and behavioral processes. For this reason, the hypotheses were tested via multiple regressions using all data from scales rather than just selected scales from the assessments in our study.

APPENDIX

INSTITUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **29030905**
PROJECT TITLE: **Reliability and External Correlates of the MMPI-2-RF Scales in a Clinical Sex Addiction Sample**
PROPOSED PROJECT DATES: **03/15/09 to 03/14/10**
PROJECT TYPE: **New Project**
PRINCIPAL INVESTIGATORS: **Bradley Green, Ph.D.**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Psychology**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **03/09/09 to 03/08/10**

Lawrence A. Hosman
Lawrence A. Hosman, Ph.D.
HSPRC Chair

3-10-09
Date

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

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- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **R29030905**
PROJECT TITLE: **Reliability and External Correlates of the MMPI-2-RF Scales in a Sex Addiction Sample**
PROPOSED PROJECT DATES: **03/14/2011 to 03/13/2012**
PROJECT TYPE: **Previously Approved Project**
PRINCIPAL INVESTIGATORS: **Bradley A. Green, Ph.D.**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Psychology**
FUNDING AGENCY: **University of Minnesota Press - Grant # GM002127**
HSPRC COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **03/21/2011 to 03/20/2012**

Lawrence A. Hosman — 3-22-2011

Lawrence A. Hosman, Ph.D.
HSPRC Chair

Date

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI.

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NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **R29030905**
PROJECT TITLE: **Reliability and External Correlates of the MMPI-2-RF Scales in a Sex Addiction Sample**
PROJECT TYPE: **Renewal of a Previously Approved Project**
RESEARCHER/S: **Bradley Green, Ph.D.**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Psychology**
FUNDING AGENCY: **University of Minnesota Press - Grant # GM002127**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF PROJECT APPROVAL: **03/08/2012 to 03/07/2013**

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair

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